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RIPE FOR CHANGE: ROLES OF PLANNERS AND LANDSCAPE ARCHITECTS AT THE INTERFACE OF THE LAND AND THE NETWORK IN AN ALTERNATIVE AGRICULTURE MODEL FOR UPSTATE SOUTH CAROLINA

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RIPE FOR CHANGE: ROLES OF PLANNERS AND LANDSCAPE ARCHITECTS
AT THE INTERFACE OF THE LAND AND THE NETWORK
IN AN ALTERNATIVE AGRICULTURE MODEL FOR UPSTATE SOUTH CAROLINA

A Thesis
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degrees of
Master of Landscape Architecture
and
Master of City and Regional Planning

by
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August 2009

Accepted by:
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ABSTRACT

Both historically and in select areas today, local food systems are the main food supply for communities. Despite the fact that they are not a main source of food for most Americans, since the 1970s there has been a resurgence of U.S. local food systems (Qazi & Selfa, p.161). The movements exist in places where high-profile and vocal personalities (restaurateur, Alice Waters; author, Michael Pollan; or activist Carlo Petrini) also reside. This thesis examines whether the viability of the resurgence in local food systems depends on the commitment of a single person, and if not, whether those who affect the physical forms of communities, e.g. planners and landscape architects, have a role in creating and fostering the systems. Five counties (Anderson, Greenville, Oconee, Pickens and Spartanburg) of Upstate South Carolina have a local food movement, but it is a grassroots movement without a single person or organization at the helm. Without a figurehead it is not clear who is influencing, operating or facilitating the local food movement, particularly for produce. Using a mixed methodology, this study asks and answers the following question: “What role have planners and landscape architects played in the development of the local produce network of five Upstate counties in South Carolina and what roles do they continue to play?” The initial hypothesis is that planners are unknowingly contributing to and facilitating the local food movement; landscape architects, on the other hand, are acting in reaction to the movement; they are responding to their clients’ (an end user in the network) desires to add local food components to new developments. Articulation of both the planners and landscape architects’ roles in the local produce network, along with dissemination of the information, will enable them to consciously guide the movement and take action in accordance with that determined direction.

DEDICATION

To the three greatest J's.

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I am grateful to the many people who generously gave their time in extended interviews. They willingly answered my questions and provided answers to questions that I did not even know I should ask. They openly shared their experiences from their local food system, and I have consequently learned a great deal.

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CHAPTER 1

INTRODUCTION

For many, to eat is to participate in the global food system. For much of the past 50-60 years, participation in this industrialized mindset went without widespread challenge. Living in cities and towns, most people were and still are, far removed from the sources and origins of food. Over the last century, the United States has transitioned from a nation of farmers to a nation of consumers. The ensuing and increasing physical and psychological distance between consumer and food producer creates a disconnect between the social consciousness and social and environmental consequences of food production. The production of food seems like a simple process, but what actually happens to food products between the field and table can be enormously complex.

In recent years, people have responded to the food projection perspectives supplied by industrial agricultural corporations with two disparate views of the future of food. The industrial agriculture perspective furthers the current model, producing massive quantities of food stuffs suitable for shipment to markets throughout the world; this comes at the cost of habitat destruction and variety loss, degradation of water quality and reduction of availability, and reliance on a precarious petroleum industry for all aspects of the food production and delivery process. The alternative perspective embraces a more traditional agrarian approach. This new consciousness strives to reconnect people, nature, farmers and the land. It mimics the ways in which people have provided sustenance to themselves, their families and communities for hundreds of years.

Like this point of divergence over the future direction of agriculture, the Upstate of South Carolina finds itself at a critical juncture. Located along a thriving area on the technology corridor between Atlanta, Georgia and Raleigh, North Carolina, the Upstate encompasses ten counties and includes both urban and rural areas; six of those counties have formed a partnership called

the Appalachian Council of Governments (ACOG). In recent years the area has experienced significant growth and to its detriment, sprawl. Growth projections for the area predict 40 acres a day being consumed by development through 2030 (Upstate Forever, 2008). Agriculture has been present in the Upstate for much of its history. Even though land was severely damaged by cotton farmers in the late 1800s and early 1900s, productive agriculture lands still abound. As urban development stretches outward from cities, it is this productive agriculture land that is in jeopardy of disappearance.

The term “food web” is typically used to refer to the interconnectivity of plants and animals in an ecosystem. Along with other terms, such as network and system, “food web” can also be used to refer to the interconnectivity of farmers, producers, markets and humans during the process of getting food from farm to consumer (Altieri, 2008). Though there are the traces of a local food system, or a food web, in the Upstate of South Carolina, they have not been formally recognized as such. This project will articulate the network of participants involved in the local food movement for five counties in the Upstate of South Carolina, by first exploring network and social movement theories to determine if the Upstate has characteristics that enable it to be investigated as either and second, by investigating local food movements in other areas to determine how and why they began, as well as the features that have contributed to their success. Many of the issues documented here have been acknowledged before in other contexts, but this alternative investigation provides a detailed enumeration of the needs of the region and subsequent supply responses. This investigation contributes to the literature by tracing the evolution of a local food movement without an identifiable activist at its helm and by determining whether or how planners and landscape architects play an integral role in fostering the process.

CHAPTER 2

REVIEW OF LITERATURE:

AN ALTERNATIVE FOOD MOVEMENT AS A SOCIAL MOVEMENT

Social Movement Theory

Early social movement theory centered on participation of the individual. The major theories of this period conjectured that social movements manifested through the discontent of individuals in society. It was also theorized that this discontent was rare and that the individuals acted “arational, if not outright irrational” (Jenkins, p 528). Early theorists thought that social movements were in existence only because society had lost the intermediate organizations that discontented individuals could join (Kornhauser, 1959). Those intermediaries included organizations such as trade unions, community groups and churches (Goodwin & Jasper, 2003). Early theorists also thought that only alienated or people with “infantile psychological needs” (Goodwin & Jasper, p 11) joined social movements. Today, social movements are a normal part of politics (Goodwin & Jasper, 2003).

In the mid 1960’s and 1970’s new social movement theories emerged. New Social Movement theory (NSM), was centered in Europe and focused less on changes in economics or public policy and more on changes in identity lifestyle and culture (Laraña, Johnston, & Gusfield, 1994). Resource Mobilization Theory (RMT) emerged in the United States. While attempting to account for the protest cycles of the 1960’s, social movement researchers noticed that the movements under scrutiny usually consisted of individual actors that did, in fact, behave rationally. The participants would weigh the relative costs and benefits of participation in the movement and would only participate when the potential benefits outweighed the anticipated costs. Once entering the movement, they became part of an organizational structure. One prerequisite for any organization in the movement was a certain level of resources in order to sustain it; the theory assumes that social movements could not occur without resources.

Resources could be provided in various forms, including money, patronage, media attention, and in significant divergence from earlier theories, an organizational structure. They argued there was always discontent in society but what varied over time was the resources available to allow the emergence of a movement (Jenkins, 1983).

Characteristics and Components of Social Movements

There is a breadth of literature on social movements. Although there is no single definition for social movements (Rios, 2000), the current paradigm suggests that social movements share several characteristics. Though the causes that are represented are diverse, social movements are oriented towards fundamental and cultural change (Goodwin & Jasper, 2004). The social movements aim to develop a collective consciousness in order to induce change (Diani & McAdam, 2003). These movements are composed of numerous informal fluid organizations that can mobilize large numbers of ordinary citizens. The importance of organizational size is directly related to the organization's ability to maintain or sustain activity. Social movements are a collection of organizations or groups that network and form coalitions for organizational strength. The actors or individual members in social movements are usually from an aggrieved population, often a disenfranchised group of society (Rios, 2000). The actions of the organizations and the persons promoting them may have similar values or social traits (Diani & McAdam, 2003).

To illustrate the components of social movements, a specific alternative food movement will be used as an example. The alternative food movement is a subset of the environmental movement (Diani & McAdam, 2003). Alternative food networks exist, and have existed in various forms since the rise of industrial agriculture (Qazi & Selfa, 2005). Current versions include the Slow Food Movement, the 100-Mile Diet, organically grown produce, grass-fed beef, free-range poultry, eating only what you can grow, and local food. The local food movement, similar to the 100-Mile Diet but with a less specific geographically defined boundary, will be the alternative food network explored in this study and will be used to illustrate the indicators of a social movement.

Role of Leadership

Social movements are often identified with specific personalities, or “leaders” (Eichler, 1947). The presence of a leader is not a defining characteristic of social movements (Diani & McAdam, 2003). Though movement leadership has been viewed as a disproportionate relation between the leader and followers, Diani argues that the “established conceptions of leadership... failed to capture the experiences of the left-libertarian movements; their members not only tend to be either weakly related to specific organizations (in the case of individuals) or formally independent from each other (in the case of organizations), but often reject authoritative leadership figures as a matter of principle” (Diani & McAdam, p 105). Because leaders of social movement tend to be charismatic, the decision-making structure of the movement may be misinterpreted as hierarchical (Eichler, 1947).

Alice Waters is often identified with the local food movement in Berkeley, CA. Since the 1970's she has played a variety of roles, including restaurateur, advocate, and promoter. As a young chef and restaurant owner, she created relationships with local farmers; she was known to barter cooked meals for fresh produce (McNamee, 2007). As she and her restaurant became famous, she gained a platform for extolling the benefits of local food.

Waters is still an important proponent of local food in Berkeley and across the United States. She is a strong advocate for farmer's markets and for sound and sustainable agriculture. In 1996, in celebration of the restaurant's twenty-fifth anniversary, Waters created the Chez Panisse Foundation to help underwrite cultural and educational programs that “demonstrate the transformative power of growing, cooking, and sharing food.” Waters influences public perception beyond her restaurant and foundation, by using the media. She is author and co-author of eight books and in 1992 was named Best Chef in America by the James Beard Foundation (Chez Panisse, 2008)

Michael Pollan is another personality commonly associated with the local food movement. Pollan is an author that has recently emerged as an important critic of the industrial food complex. His 2006 best-selling exploration of the food chain, The Omnivore's Dilemma: A

Natural History of Four Meals, was named one of the ten best books of the year by The New York Times and The Washington Post (Pollan, 2008). Pollan is a proponent of buying locally from the people who actually produce food or hunt and gather wild food sources. He proposes that food products with “five or more ingredients (especially if you cannot pronounce them) should be avoided” (Pollan, 2008); in effect, he says that no product of the industrial agriculture food chain should be eaten.

Although Pollan’s hunting and gathering food in the wilderness is not a realistic venture for most people living in the United States, and he is not connected with a movement in a single geographic area, Pollan has contributed to bringing industrial agriculture under scrutiny and providing alternative visions for food production and consumption. He brought the discussion of local food and industrial agriculture into the mainstream media.

As personalities often associated with the local food movement, Alice Waters, Michael Pollan, for instance, are seen as leaders; their presence, however, is inconsequential to the existence of the structure of local food a social movement; their presence is not a defining characteristic for the existence of a social movement (Diani & McAdam, 2003). Not to diminish their contributions, such leaders and activists act as spokespeople for the movement. Strong involvement of activists in social movements benefits recruitment of participants (Passy, 2001), as well.

Organizational structures and networks have become increasingly more important in social movement theory. Recent thought that approaches social movements as networks challenges the current dominant paradigms of collective action and contentious politics (Diani & McAdam, 2003). Diani contends that many of the shared characteristics of social movements do not define a movement as such (Diani & McAdam, 2003).

Social movements are similar to non-conflictual movements, political organizations and coalitions. As a group, the four forms of collective action include one or more of the traits of conflict, collective identity and informal networks; only social movements include all three traits (Diani & McAdam, 2003). According to Diani, social movements are:

“...distinctive neither because of their adoption of radical forms of action, nor because of their interest in new issues or their predilection for loose organizational forms. They are distinctive because they consist of formally independent actors who are embedded in specific local contexts (where ‘local’ is meant in either a territorial or social sense), bear specific identities, values and orientations and pursue specific goals and objectives, but who are at the same time linked through various forms of concrete cooperation and/or mutual recognition in a bond which extends beyond any specific protest action, campaign, etc.” (p 301)

Presence of Conflict

Political organizations or sects, coalitions and social movements all experience the presence of conflict. This presence of conflict sets these three collective dynamics apart from non-conflictual movements (Diani & McAdam, 2003). The local food movement has experienced conflict in the following ways:

1. Conflict occurs as a result of the perception concerning the current industrial agriculture model's affect on the land and environment.
2. Conflict occurs as small farmers are excluded from the agriculture market through policy implementation and the disproportionate resources needed for market entrance
3. The conflict is also apparent at the interface of urbanization and rural areas as farmland is overcome by sprawl.

The conflict in response to the forces of rapid urban growth and farmland conversion is not a direct result of population growth that is occurring; the conflict occurs in regards to the conversion of farmland to development in order to accommodate the growth. In between 1982 and 1997, the population in the United States grew by seventeen percent while urbanization occurred at a rate of forty-seven percent (American Farmland Trust, 2002). The average acreage

per person for new housing almost doubled within that same time frame. This land conversion occurs on the periphery of cities; the development that occurs in these areas is referred to as “sprawl.”

The conflict related to the industrial agriculture model arises from the fact that industrial agriculture makes a significant impact on the landscape and the environment. Industrial agriculture supersedes factories, sprawl and road construction in destroying water and soil quality and wildlife habitat. The scale of habitat destruction by industrial agriculture, which includes vegetation clearing or replacing one kind of vegetation with another, has led to the extinction or endangerment of ninety percent of threatened species. Although farming for local food systems also converts original vegetative land cover to crops or pasture, it does not do so at the scale of industrial agriculture. It is industrial agriculture that replaces many of the original diverse species in an ecosystem with a limited number of species, much like the monoculture cropping itself (Kimbrell, 2002).

In fact, plant variety is closely related to habitat loss. For more than 12,000 years, farmers selected seeds from the better performing crops to encourage development of thousands of individual seed varieties in different ecosystems and geographies around the world. However, plant breeding practices have changed; traditional diverse farming practices gave way to monocultures in the industrial agriculture model. Seeds have been bred to specifically respond to chemical use so that they will produce greater yields. The ensuing monocultures are now dependent on the chemicals to ward-off tragedy. As diseases and pests develop tolerance at or exceeding the pace of new chemical release, the industrial food system is vulnerable to destruction. The Irish Potato Famine of 1840 was caused by reliance on a single variety of potatoes. In 1970, US farmers lost one billion dollars worth of crops after disease killed a single corn variety (Kimbrell, 2002). Most of the processed foods found on grocery store shelves are made from a few raw food materials; corn, wheat, rice and potatoes are the staples. As a result, just nine crops now account for over 75 percent of all the food consumed by humans. There has

been significant loss of the varieties within these nine crops – 97 percent of the varieties available in 1900 are now extinct (Kimbrell, 2002).

Chemicals in the form of both fertilizers and pesticides are key components in industrial agriculture that cause unintended problems for the environment (Beus, 1990). According to Richard Merrill, author of *Radical Agriculture*, “By the 1970s there were over 100 industrial plants producing about 1000 pesticide chemicals variously combined in over 50,000 registered pesticides” (Baker & Merrill, 1976). Even with the popularity of Rachel Carson’s *Silent Spring*, chemical use continued to contribute to environmental degradation. Between 1977 and 1984, half of the fish kills off the coast of South Carolina were attributed to pesticide contamination. The honeybee population, responsible for pollinating 15-30 percent of all food consumed in the United States, has dropped in half in the last 50 years because of widespread pesticide use (Kimbrell, 2002). The agricultural pesticides are persistent chemicals with a high potential for biomagnification and accumulation; they also have the ability to travel through ecosystems and persist while doing so. Pesticides like methoxychlor and endosulfan, which are registered to control agriculture insects in the United States, Canada and Eurasia, have been detected in the Arctic – an ecosystem where the pesticides are not even applied. Pollution-association and climate-related changes in arctic ecosystems can have dramatic global consequences (Walker, 2005).

Irrigated agriculture is dependent on an adequate water supply of a potable quality, but it is responsible for non-point source pollution in water bodies. Observations of the Mississippi River and Midwest reservoirs have shown the detection of herbicides in surface water samples (Coupe, 1995). The large land masses used in agriculture are also susceptible to erosion by both wind and water as new crops attempt to establish, contributing to increased sediment loads in surface waters. Fawcett et al. found that surface runoff is the primary path along which pesticides move from fields into surface water (Fawcett, 1994).

Chemical compounds found in fertilizer are also detrimental to water quality. Nitrate-nitrogen is considered to be one of the largest loadings into the Mississippi River; it has been

identified as one of the factors associated with the hypoxic area in the Gulf of Mexico (Nassauer, Santelmann, & Scavia, 2007). When recently measured, the dead zone covered 8,000 square miles, or an area larger than the state of Massachusetts. Studies show that five states in the Upper Mississippi River Basin, including Illinois, Iowa, Minnesota, Missouri, and Wisconsin, contribute approximately seventy-five percent of the excess nitrogen and phosphorous nutrients that flow into the Mississippi River and lead to a low-oxygen "dead zone" in the Gulf of Mexico every summer. Research also shows that about half of the nitrogen is from corn-soybean production and thirty-seven percent of the phosphorus is from livestock pasture on agricultural lands (D. Brown, 2008).

The pesticides and fertilizers used in industrial agriculture are not the only place where petroleum and fossil fuel consumption enters the process. The industrial agriculture model relies on fossil fuels for packaging and production of foodstuffs, not to mention the large usage for transportation of the products from farm to consumer. In the current industrial agriculture model, most food travels hundreds or thousands of miles from the farm to the dinner table. In 2002, the Leopold Center for Sustainable Agriculture found that the average distance traveled by food type was 1,378 miles (Pirog, 2001). These "food miles" are the distance food travels from where it is grown or raised to where it is ultimately acquired by the consumer, as well as the environmental impact of getting it there (though this impact is not normally calculated as part of the food mile cost) (Pirog, 2001). The environmental cost associated with the fossil fuel consumption for these food miles may be in terms of greenhouse gas production that contributes to global climate change; it may be in terms of habitat destruction as new oil wells are drilled in remote areas (Greene, 2004; Tegtmeier, 2004). Since the full consequences of the greenhouse gas emissions from fossil fuel consumption and from the use for food production specifically will not be completely felt for years after the greenhouse gases are emitted, it is difficult to predict and assign a monetary value to the future ecological damage and add it to the costs of today's industrial food system.

There are also non-environmental sources of conflict between the participants of in the local agriculture movement and the industrial agriculture model. Industrial agriculture has the resources to protect market domination (Forman, 2008). Eighty percent of agribusiness research is devoted to shipping, storage and market-maximization technologies (ETC Group, 2008). Convergence is occurring in terms of capital as corporate alliances are forming to take advantage of all aspects of the food supply chain - from the commercial seed market, to agrochemicals and fertilizers, to biotechnology, and biofuels (ETC Group, 2008). Governmental policies had favored large agribusiness by keeping commodity prices low and removing trade barriers. Small-scale farmers cannot compete with the ensuing subsidized food imports. In doing so, the small farmer is removed from the market, also diminishing the multiplier effect of that farmer's profit in the local economy (Forman, 2008).

Networks in Social Movements

Social networks are the relations created among social entities and the ensuing patterns and implications of these relationships (Wasserman & Faust, 1994). The network includes both the actors and the relations (Knoke, Yang, & Knoke, 2008). Actor-network theory is a framework through which to view social movements. It is an approach to social theory that maps relations between the physical components and concepts; it describes interactions between people, their ideas, and technologies and recognizes these relationships as components of a single network. Actor-network theory explores how actor-networks are formed, and how they hold themselves together or fall apart (Latour, 2005).

Social network analysis is a methodology used in describing the relations in the network. Prominence and prestige of an actor(s) can be identified through the use of degree of centrality analysis (Wasserman & Faust, 1994). Degree of centrality determines whether the ties from an actor to others in the network make it "clearly visible" (Wasserman & Faust, p 172). Prominence takes into account not only adjacent ties between actors, but also indirect paths involving the actor under observation. Degree of centrality also helps determine the prestige of an actor. An

actor's prestige increases when it is the focus of other actors - when it is the receiver of many relations (Wasserman & Faust, 1994).

Betweenness centrality is also used to describe networks. Betweenness centrality measures the extent to which actors lie on paths (relations) between other actors. It indicates how actors mediate relations between actors who are not directly connected (Knoke et al., 2008; Wasserman & Faust, 1994). It is often used to indicate resource flow or information exchange (Knoke et al., 2008).

The informal nature of networks differentiates them from political organizations or sects. In social movements, participants exchange resources through the non-regulated linkages that connect them, with the terms of the exchange controlled by those involved. If the actions were conducted only within the boundaries of a few specific organizations and the roles of the individual were defined by those organizations, the movement would not be social in nature (Diani & McAdam, 2003). The early forays of Alice Waters illustrate the informal nature of the network in the local food movement.

In the 1970s, Alice Waters opened a restaurant in Berkeley named Chez Panisse. As a student in France, Waters became accustomed to the availability and variety of fresh food there. To the French, this was the way things were supposed to be. 'They always had this local distribution system,' Waters explains. 'So much wonderful food came from nearby, less than an hour away' (McNamee, p 86). Waters desired a similar market for foods to use in her restaurant; she knew that the absence of a system similar to the one she experienced in France would prevent Chez Panisse from being as successful as she desired.

When Chez Panisse first opened, food was grown in the area surrounding Berkeley, but the farmers involved in the production were virtually unknown. Waters went in search of these farmers. She would purchase the produce that looked the best and design her menus around it. As she created relationships with farmers she started requesting different items; she would persuade farmers to grow an old, nearly lost variety of chickens, or tomatoes or turnips (McNamee, 2007). Though that focus on taste and quality may not be appropriate in all local food

networks, for Alice Water and the farmers in Berkeley, it was appropriate and it could change to suit their needs.

Collective Identity

The presence of an identity that transcends the boundaries of a specific event is also an indicator of a social movement; though non-conflictual movements and political organizations have this trait, coalitions do not (Diani & McAdam, 2003). In alternative agriculture models, “locavore” has a term of collective identity. The term was coined in 2005 by Jessica Prentice, chef and author of Full Moon Feast: Food and the Hunger for Connection, to identify a group of people in the San Francisco Bay area that made an effort to eat only foods grown or harvested within one hundred miles of the Bay area. The term is now used to describe all people, not just those from San Francisco, that prefer to buy goods or services produced in their specific local area; in 2007, the term was added to the Oxford American dictionary.

Network Case Studies: One Old and One New

Berkeley, CA

A social movement requires conflict, a network and a collective identity – local food movements embody all three. In spite of the collective identity, however, individuality among participants is present in social movements; the individuality is the characteristic that allows for the informal network to exist, which in turn allows for the social movement to exist. A social network can exist without being a social movement, but a social movement cannot exist without a network (Diani & McAdam, 2003). To further explore local food movements as a social movement, two case studies are chosen as illustrations. One network, Berkeley, California, has been in existence since the 1970’s; in spite of its agriculture heritage, the other network, Durham-Chapel Hill, North Carolina, emerged more recently.

Berkeley, California was an early participant in the local food movement. The local food system in Berkeley involved a myriad of people and institutions; one of the first to react to industrial agriculture was Alice Waters. As previously mentioned, Waters created a need for

locally grown food through her restaurant Chez Panisse. She helped increase the public awareness of the necessity for locally grown food through her profession as a world-renowned chef and through establishment of the Chez Panisse Foundation (Chez Panisse, 2008).

Another component of the local food movement in Berkeley was (and still is) the “Edible Schoolyard.” In 1995 the Center for Ecoliteracy (CEL) and the Chez Panisse Foundation funded a project at Berkeley’s Martin Luther King, Jr. Middle School to address food as a complete system. The idea was to create an ecological curriculum run as a school lunch program. Fritjof Capra, the founder of CEL, summarized the reasoning behind the Edible Schoolyard as

“... students can learn the facts without them affecting their lives. You need to instill a certain passion for nature. You can’t do that in the classroom alone. By growing and eating vegetables, they learn to see themselves as part of natural cycles. Our health depends on the health of our food, which depends on the health of the soil. Children learn that we are embedded in the soil. They see that we are not apart from nature, but a part of it, and that therefore we must play our part” (Stone, 2002).

In 2005, the Edible Schoolyard served over 800 students in the sixth, seventh and eighth grades. Sixth graders work in the garden in the fall as part of their math and science curriculum; in the spring they work in the kitchen. The seventh graders use the garden for studies in the social sciences and humanities. The oldest students use the garden for special projects (Lawson, 2005).

Although the edible school yard is describes as a model of school gardening, critics suggest that its celebrity sponsorship (Alice Waters) and location in a Berkeley (a progressive town) are the externalities that have assured its success (Lawson, 2005). One important lesson from the Edible Schoolyard is that in spite of the fact that the program had the backing of the CEL and a notable local food proponent, the program germinated slowly (Stone, 2002).

The Berkeley Youth Alternatives (BYA) is a long-standing nonprofit youth center that provides a variety of services, including after-school care and summer programs, sports leagues,

crisis counseling, academic tutoring, and youth employment to predominantly low-income, at-risk children and their families. In 1993, the director of BYA started a community garden called the “Garden Patch” in response to the excessive fast-food breakfasts the children were bringing to the community center. It took over five years to develop the garden. Based on community input, the garden was designed to be attractive from the adjacent streets; it was intended to be a resource for adults and children in the community. The garden plots are actively used and there is a waiting list of people who would like plots (Lawson, 2005).

The core of the Garden Patch program is the youth market program. It is a program that was envisioned as an income-generating venture that would pay for the other components of the garden, but through the years this was determined to be a non-attainable goal. The youth market now is expected to support fifteen percent of the total BYA budget. The youth market program employs between two and six youth who work fifteen hours a week. The workers grow, harvest and produce flowers, produce, plant starts, wreaths and garlic braids that are then sold at farmers’ markets and to local restaurants. Along with the skills for growing and harvesting, the workers also are trained in computer skills, landscaping techniques, and communication (Lawson, 2005).

Berkeley, California, also has a successful farmer’s market. Started in 1987, it has run continuously since that time. Operated by the Ecology Center, the certified farmers’ market is open three days a week in three different locations. More than one hundred farmers sell fresh locally-grown fruits, nuts, vegetables and farm-processed foods directly to consumers. Vendors also provide fresh baked goods, jams and preserves, juices, olive oils, goats milk and cheeses, nursery plants and flowers. The Berkeley Farmers’ Markets are committed to supporting small-scale farmers who practice sustainable agriculture; more than half of the produce available at the markets is registered or certified organically grown (Ecology Center, 2008).

Berkeley, California has a variety of components in its local food system. The components allow for connections among many segments of society. Up-scale restaurants serving local food cater to those with disposable income; venues are provided for low-income

residents to supplement their food budget with locally, self-grown food; and the public education curriculum encourages children to explore their place in the food production system. Although these physical components may not be unique to Berkeley, for Berkeley, the components are necessary places in which the network relations can occur.

Carrboro, Chapel Hill and Durham, NC

Durham and Chapel Hill, North Carolina, united by U.S. Highway 15-501 and with a combined population of less than 300,000 people have experienced a surge in local food demands and a rapidly evolving local food web (Knowlton, 2008). From a geographic and population size, it is not much different from the Greenville-Spartanburg area in the Upstate of South Carolina. Once covered with tobacco farms, this area now boasts more than 120 small farms within a 50-mile radius, over a dozen farmers' markets and a number of chefs at local restaurants that demand local food for their kitchens (Knowlton, 2008).

Carrboro is located in the same region of North Carolina and participates in the same food web. Though Carrboro has hosted a farmers' market for the last 30 years (Hoban, 2008), it is only in the recent decade that the local food system has expanded. The market is located in Carrboro on Saturday mornings and Wednesday afternoons; on Thursday afternoons the market moves to Chapel Hill (Dunlap, 2008). After the September 11th tragedy, sales at the markets rose drastically as customers were concerned about where their food originated. Currently the farmers' markets have over 80 vendors on a regular basis. Various factors contribute to the success of the market. Building farmer-consumer relationships is the number one priority of the governing board of the farmers' market. In addition to fostering these relationships, the market also provides a community social center – it is a pleasant place for people to gather and it can be easily reached by car, foot or bicycle. Innovation has contributed to the market's success and longevity – the farmers are willing to try new products at the request of customers and the customers are willing to try what the farmers sell. There is also a desire among residents of the area to connect with the land through farmers (Hoban, 2008).

Physical Components of the Network

The physical components of a local food network are the places at which the relations between actors in the network occur; they are the canvas and they paint; the network is the final work of art. Observation of the physical elements is important to create an inventory and uncover trends in land use change. Because land converts easily from agricultural lands to development, but not vice versa, observation of physical traces allows for identification of lands, corridors and regions that may be vital for local agriculture as a particular land use (Jarosz, 2008). Based on John Zeisel's research methods for understanding how spaces work, these purposes translate into questions such as: How do environments create opportunities for people? Where do people and their surrounding impinge on each other? Where do they limit each other? How do people use the environment as a means to an end? And to what end? How do people manipulate their surroundings? How do people change their environments to meet their needs? What takes place in particular settings (Zeisel, 2006)?

In this section, four of the major forms of the physical manifestations of a local food system are defined, followed by a description of the contextual history of their emergence and current place in the local food web. Any given local food system may not have all of these components, nor any prescribed ratio among the physical forms. Since local food movements are dependent on the unique characteristics of the locale where they exist, the extensive list of physical components are described in the context of the Upstate's local food movement.

The Farm

The farm as a component of the network is more spatially removed from other places, making it difficult for relations between actors to occur at the farm. Without the farms, however, there would not be a local produce movement. Produce production for a local food network demands less land mass than industrial agriculture. The U.S. Department of Agriculture defines small farms as those that have sales less than \$250,000 annually. They have an average size of 110 acres and are most often less than 200 acres (U.S. Department of Agriculture, 2008a). The

farmers that work these farms tend to be more concerned with soil health and are less likely to use chemicals than those who follow the industrial agriculture model; these farmers tend to be more in tune to the land and the ecosystem within which they are working. Though “small farm” is not synonymous with “organic” or “sustainable,” a greater percentage of small farms are labeled and certified as such (Altieri, 2008). In the United States, the top twenty-five percent of sustainable agriculture farms, which include those that participate in a local food network and which are mostly small-to-medium size, exhibit higher yields than conventional farms, and exert a much lower negative impact on the environment, reducing soil erosion and conserving biodiversity (Altieri, 2008). Partly because the farm is a place of work for only a few individuals and partly because farms tend to be located in rural areas, opportunities for social interaction, exchange of ideas, or exchange of goods and services tend to be limited at the farm.

Review of the literature provides insight into criteria that can be employed in characterizing land as suitable for farming. Components used in the identification of farmland as an important resource in the local food system can be divided into four categories – natural resources, infrastructure, cultural features and demographics.

Natural Components

National soil surveys provided by the National Resources Conservation Service (NRCS) have been used in land evaluation for decades; the first soil survey was published in 1899 (D. Smith, 1998). In the 1990's, the Department of Agriculture expanded upon the national soil survey. Within this data set, the NRCS has determined soils that are specifically suitable for farming. Soil type, drainage and slope of the land are a few of the criteria used in this categorization. Soils are labeled as “prime farmland,” “farmland of statewide importance” or appropriate for farming specific conditions or lands not suitable for farming (R. B. Brown, 1998).

Lands in use as croplands are an important component of land for the local food network. Diverse farmland types indicate diverse species, diverse farming communities, diverse economics and a diversity of available food products for the local food network (Forman, 2008). Diversity of adjacent land also is an important component of suitable farmland. Biodiversity,

especially of land cover types, allows for animal translocation; predators of various crop pests are allowed to move through an area, thus increasing crop production (Forman, 2008).

Infrastructure

For local food systems, the distance between the locations of food production and the consumer are especially important. The Leopold Center for Sustainable Agriculture at the University of Iowa has researched food miles of local food. Using a single figure that combines information on the distances from production to point of sale and the amount of food transported, the Leopold Center reported that distances ranged from twenty miles for broccoli and sweet corn to seventy-five miles for potatoes. The average distance for locally grown produce to reach institutional markets was fifty-six miles, while the conventional source distance for the produce to reach those same institutional points of sale was 1,494 miles, nearly twenty-seven times further (Pirog, 2003). These food miles are actual miles traveled as opposed to perceived miles or distance that participants in a local food system assume.

Other organizations attempt to quantify the distances for local food. The Slow Food Movement suggests that food should not travel more than 400 km (248 miles) (Petrini & Padovani, 2006) from farm to consumer; the 100 Mile Diet suggests that the maximum distance should be 100 miles (A. Smith & MacKinnon, 2007). Although agreement is lacking on the actual mileage that constitutes “local” in a local food network, there seems to be a perceived upper limit.

In Urban Regions: Ecology and Planning Beyond the City, Forman proposes consideration of electric powerline corridors, pipeline corridors and railway corridors for patterns of green space. These corridors have the potential to form patterns in a landscape. Often these are underutilized areas (Forman, 2008). Especially in urban environments where agricultural land is scarce, these corridors could be an important component of the local food system.

Cultural features

Agritourism is a growing form of agricultural diversification in the United States. It can take the form of farm tours or farm stays, bed and breakfast ventures, pick-your-own produce locations, or agriculture festivals – it generally includes “rural enterprises which incorporate both a working

farm environment and a commercial tourism component” (McGehee, 2007). Though farmers recognize the potential for agritourism as contributor to success in agriculture, they often have limited resources for marketing agritourism. McGehee suggests that destination marketing organizations (DMOs) be employed to overcome the marketing challenges for all stakeholders (McGehee, 2007). A national agritourism association does not currently exist in the United States, but various organizations serve a similar purpose. The Small Farm Center at the University of California (University of California, 2009), Oklahoma Agritourism (Oklahoma Agritourism, 2009) and the South Carolina National Heritage Corridor Farmers Association (SC Heritage Corridor, 2009), are a few examples

Demographics

Because there is an economic component of local food systems, the availability of a market is important to the producers in the system. Combined with the need for respecting the distance between producer and consumer, farmland located within a specific distance of urbanized, densely populated areas are especially situated for inclusion into the local food system of that given area. The US Census Bureau delineates clusters of contiguous, highly developed land throughout the United States. These areas represent population centers as discrete geographic entities and can be used as the market for the transfer of goods and money between farmers and consumer (Tulloch, Myers, Hasse, Parks, & Lathrop, 2003). Often these communities initially developed because productive land was available to farm (Forman, 2008).

Community Supported Agriculture (CSA)

Community Supported Agriculture (CSA) programs have been used to increase the direct connections between farmers and others in local food networks; they are places where farmers can directly interact with other actors in the network. Though they began in the early 1960s in both Europe and Asia as a response to concerns about food safety and the urbanization of agricultural land (Carey, 2008), the idea took root in the United States in 1984, when Jan Vander Tuin brought the concept of CSAs to North America. Community supported farms have been

organized throughout North America, but are present mainly in the Northeast, the Pacific coast, the Upper-Midwest, and Canada (McFadden, 2008). North America now has at least 1,300 CSA farms, with estimates ranging as high as 3,000 (U.S. Department of Agriculture, 2008b). One of the largest CSA organization's in the United States is Angelic Organics (Siegel, 2008).

CSA focuses on the production of high quality foods with a large degree of involvement of consumers and other stakeholders. CSA often uses organic or biodynamic farming methods, but this is not a requirement of CSA generally. Stakeholder involvement in CSA is a strong consumer-producer relationship. At the core of a CSA is a consumer group that is willing to fund a whole season's farm budget in order to get quality foods. The system has many variations on how the farm budget is supported by the consumers and how the producers then deliver the foods. Many CSA programs have a system where producers and consumers discuss farm budget, reach a consensus on product pricing and agree to share both the risk and reward of a food production process governed by weather. Participants in the program support the budget of the whole farm and receive what is seasonally ripe on a weekly basis. This approach eliminates the marketing risks and costs for the producer and allows producers to focus on quality crops, soil health, co-workers and service to the customers. There is little to no loss in this system, since the producers know in advance for whom they are growing and how much to grow (DeMuth, 1993).

Some consumers enroll in subscription CSA programs in which the participant pays a fixed price for each appointed amount of produce. This arrangement, where customers can start or stop as they wish, is also referred to as crop-sharing or a box scheme. In such cases, the farmer may supplement each "box" with produce brought in from neighboring farms for better produce variety. In both of these CSA arrangements, whole-farm share-purchase or box scheme, a portion of the farm's harvest is purchased either by the season (whole-farm share purchase) or by the week (box-scheme) in return for what the producer is able to successfully grow and harvest ((DeMuth, 1993). The largest subscription CSA, with over 4,000 families, is "Farm Fresh To You" established in 1992 in Capay Valley, California (Farm Fresh to You, 2008).

A distinctive feature of CSA's in the United States is the method of delivery of produce from farmer to consumer. Whole-farm share purchases are usually provided weekly, with designated days and times for pick-up. The locations can be at the farm, or in the case of CSA subscribers who live in towns and cities away from the farm, the drop-off can be at a convenient in-town location (DeMuth, 1993).

In a buying club or home delivery services, the consumer typically purchases a specific product at a predetermined price; CSA programs are different. CSA members purchase only what the farm is able to successfully grow and harvest. In essence, CSA members share some of the growing risk with the farmer. CSA members are more actively involved in the growing and distribution process through farm visits, farm work-days, advance purchases of shares, and acquiring their produce (DeMuth, 1993). There are a variety of advantages of the close consumer-producer relationship in CSA programs. Produce freshness is increased and pollution caused by transporting the produce is decreased because the food does not have to be shipped long distances (DeMuth, 1993) as compared to the industrial agriculture model. Over a period of time, the geographic proximity of consumer and grower allow consumers to know who is producing their food, and what production methods are being used.

Community Gardens

Community gardens are other places at which actors in the local food network can interact. The concept of community gardens is not a new one. Historians and anthropologists have found that gardens were the center of family life in the ancient city of Pompeii (Lawson, 2005). Throughout time these gardens have been referred to as workers gardens, family gardens, potato patches, allotments, colony gardens, etc (Basset, 1981). They have served a variety of purposes and attracted a variety of participants. They have been used (and forgotten) over the years for a myriad of reasons, from providing food in war time to promoting peace in struggling neighborhoods (Ferguson, 2006). Community gardens have provided a platform through which to better understand community health, development and empowerment, as well

as the inter-relations of the social and physical environments (Kuo, 1998). They have been used for their restorative and therapeutic qualities as well. Where community gardens have been successful, they have acted as both a place of interaction and knowledge exchange and a binding agent for people (Kuo, 1998) – they have a broader societal purpose than providing food.

School Gardens for Education

Friedrich Froebel created school gardens for preschoolers in urban Germany starting in 1840 (Tucker, 1993). Perhaps encouraged by gardens created for children's benefit in German cities, and later in cities throughout Europe, school gardens in the United States resulted from concern for the overly industrialized urban world in which children were growing up (Basset, 1981). School gardens played an important role in the nature study movement, allowing for children to learn about the environment through investigation. Urban school teachers began to create school gardens for the purpose of “hands-on teaching of biology and the interdependence of plants, animals, minerals, and people” (Tucker, 1993). Studying nature through school gardens served as a “living laboratory” for scientific education and was believed to also offer an opportunity for exercise and group cooperation (Tucker, 1993). These benefits were seen as ways “of opening children's minds to their civic responsibilities as well as to human-environment relationships” (Basset, 1981). More specifically, these gardens can teach children how to take care of both public and private property and about natural processes concerning aspects such as water, sunlight, and soil. In some areas (e.g. Berkeley, California) school gardens are being used to connect children to the food production process. School children prepare, plant and harvest food for school day lunches.

Garden City Plots as a Beautification Tool

Garden city plots, a neighborhood beautification tool, were introduced in the 1890's with the advent of the City Beautiful Movement (Basset, 1981). The premise of the movement was the idea that beauty could be an effective social control device. Advocates of the movement thought that by beautifying the city social ills would be swept away, civic loyalty and moral rectitude would be inspired, and the upper classes would return to city center, for work, recreation, and possible

habitation (Nadenicek, 2006). During this time, “hundreds of acres of waste and unproductive lands in the form of backyards and vacant lots were viewed as ‘civic blemishes’ that demanded immediate attention” (Basset, p 4). Gardens were a means of cleaning up these “eyesores” (Basset, 1981).

Current Community Gardens

Early forms of community gardens included liberty, relief and victory gardens. All of these forms were used to supplement food stocks in times of war or hardship. Though never completely fading, a resurgence of community gardens began in the late 1960’s and early 1970’s. Issues related to civil rights, energy and environmental concerns, as well as a need for community development all contributed to the return of community gardens in popularity. David Tucker, author of the Kitchen Garden in America, writes that the “community garden movement emerged in the cities as economic troubles doubled the inflation rate to more than 4 percent in 1968 and then zoomed the rate to 11 percent after the Arab oil embargo in 1973” (Tucker, p 158). Much the same as it is today, the hike in oil prices in the 1970’s caused hikes in the price of food and people looked for alternatives.

Community gardens can restore vacant lots and other unused properties, often home to illegal dumping, littering, graffiti, and crime. Over the past 20 years in Philadelphia, more than 1,500 community gardens have been established on vacant lots (Neighborhood Gardens Association, 2008). Cities also find that gardens build a sense of community among different cultural and generational residents. And gardens bring green space to neighborhoods, serving as a haven for residents.

Currently, in the US today there are over 18,000 community gardens, with New York City topping the list. The Green Thumb, established in New York City in 1978, is the nation’s largest urban gardening program. It assists over 600 gardens and nearly 20,000 garden members throughout New York City. The mission of the Green Thumb is to foster civic participation and encourage neighborhood revitalization while preserving open space (Lawson, 2005; NYC Parks Department, 2008).

Self-harvest

In Vienna, Austria a new concept for urban agriculture has been developed. Known as “Selbsternte,” or “self-harvest,” the concept is a mixture between community gardens and traditional farm plots. Selbsternte are small areas where self-harvesters merge traditional horticulture techniques with urban ideas on permaculture, sustainable land use and participatory farming. Farmers prepare a plot of arable land and sow or plant rows of 18-23 species, one species per row, of plants for food. The plot is subdivided into subplots that are rented by “self-harvesters.” The self-harvesters are responsible for weeding and watering their subplot; the crops from the individual subplots is for the self-harvester to reap, as well. In Vienna in 2002, there were fifteen plots and 861 subplots in use. Farmers reported that success of the self-harvest system depended on a close relationship between farmer and self-harvester; motivating factors for trying this new technique included improving relations with customers and work diversification (Vogl, 2004).

Farmer's Markets, Farm Shops, Roadside Stands and Co-ops

Farmer's markets, farm shops, roadside stands and co-ops are a slightly different physical components of local food movements than those that have been previously described. At farmer's markets, farm shops, roadside stands and co-ops, produce is not grown, it is only sold. These components are intermediary places between the farm or garden and the consumer.

Farmer's Markets and Roadside Stands

The first American farmers' markets were imitations of those held across Europe. Farmers came into town on horse-drawn wagons to sell their produce in the city. Most markets took place in empty lots on a major boulevard or thoroughfare. This is still common in Europe today and towns sponsor specific market days to allow consumers to purchase their goods daily. Local farmers sell at a few markets throughout the week (Dane County Farmers' Markets, 2008).

The first market in the history of the United States was in the English colonies in 1634 under Governor John Winthrop of Boston. Twenty-eight years later, the city built a wooden

building for the market to create a more permanent thoroughfare. Philadelphia boasted the best planned and regulated markets in the colonies. William Penn's city plan included a market along the main artery, High Street, later renamed Market Street. According to the original proclamation in 1693, the market opened twice a week with the ringing of bells (Dane County Farmers' Markets, 2008).

In 1979, between Compton and Hawthorne in Los Angeles, the Farmers Market was the first to open in Southern California and one of the first half a dozen to open across the state. Back then, farmers markets were intended simply to bring fresh fruits and vegetables to shoppers who might otherwise have a hard time finding them, and to help small farmers stay alive in what, even then, was an increasingly hostile world of commercial agriculture. Not only did the markets succeed at these twin goals, but they also ended up changing the way farming and the produce industry work. Along the way they became not only gourmet bazaars but also social centers and engines for urban redevelopment (Farmers Market, 2008). Though they hardly looked like it, these early farmer's markets were the birthplaces of a revolution that has changed American agriculture and even, to an extent, the relationship between people and food.

Though the farmer's market movement is closely identified with California, it has exploded into a national phenomenon. According to the U.S. Department of Agriculture, in 1994 there were just over 1,700 farmer's markets in the United States; in August of 2008 there were more than 4,680 farmers markets – over double the number of only a decade before (U.S. Department of Agriculture, 2008a).

Farm Shops and Food Co-ops

Farm shops are a new type of enterprise that is gaining popularity in North America. At farm shops vegetables, meats, and crafts can be marketed directly by the farmers to customers who are interested in buying local food and other local products. Advantages of farm shops include the range of products offered, the high quality products and fresh produce, and competitive prices. The main advantage of direct sales for the farmer is the fact that he/she collects all of the value of the product, rather than having value (and costs) added to raw products

by subsequent processors, wholesalers, and retailers. Most farm shops can move a wide range of products, but relatively limited amounts of each (Francis, 2005). Food co-ops are similar to farm shops, but whereas farm shops are owned and run by a farmer, co-ops can be worker or customer owned businesses. Co-ops can take the shape of retail stores or buying clubs. Food co-ops are committed to member control of goods available for sale (Halweil, Prugh, & Worldwatch Institute., 2002).

In The Great Good Place, Ray Oldenburg argues that Americans are experiencing a decline in the number of places like coffee shops, Main Street benches, and corner taverns where they can engage in informal association (Oldenburg, 1999). As compared to home and work, these are called “third places” by Oldenburg; to him they are central to local democracy and community vitality (Oldenburg, 1999). Though farmers’ markets, farm stores and the other variations are a place of work for farmers, it is not in the same sense as one would go to the office every day. Farmer’s markets are most often only open a few days a week at best; only large state farmer’s market tend to be open five days a week or more. The consistent, though infrequent schedule, provides farmers with a chance for informal association with each other (Tiemann, 2008). All of the physical components of a local food network reinforce the network itself by providing a place for participant to interact and relate.

Landscape Architects and Planners in Local Food Movements

Understanding the importance of the agriculture land itself in a local food movement, one must logically ask about the design and preservation of this integral space and how it relates to the components of the local food network. Jackson would suggest that it is anybody but a planner or landscape architect – the market, the farmer, federal government through policy, the metropolitan consumer - that shapes the agricultural landscape (Jackson, 2008). Both planners and landscape architects have the potential to affect land use and physical design of both urban and rural areas. As they affect community development, transportation systems or regional plans, landscape architects and planners may too affect local agriculture systems (Lockeretz, 1997).

Currently, there is limited literature in regards to landscape architecture and planning professions' participation in the local food movement. For both professions, there is advocacy literature concerning possible contributions each could make, implying that there is little actually done by either profession, but there is no documentation of this absence.

The landscape literature states that, "humans engage with environmental phenomena at a particular scale: that of human experience of our landscape surroundings" (Gobster, p 959). Because of this scale of engagement, aesthetics becomes an important component in the design of a local food system. The landscapes to which people are drawn are not necessarily the landscapes that are ecologically sound or sustainable; and so it is true for the landscapes that a farmer may choose for production purposes. Nassauer argues that landscape architects are adeptly suited to and need to help shape perceptions of agricultural landscape aesthetics by combining popular perceptions of beauty with ecological knowledge. They must also become advocates for the agricultural landscape and create landscapes that look and are physically healthy in order to garner support for protecting or preserving the agricultural lands (Lockeretz, 1997). Nassauer claims that, "knowledge and image must be intentionally meshed by those who care about public support for the ecological health of agricultural landscapes" (Lockeretz, p 63). Landscape architects need to be involved in the design of agricultural landscapes in order to allow for functioning ecosystems and provide recognizable beauty – viewing "messy ecosystems" through "orderly frames" (Nassauer, p 161). The combination of these two elements in landscape patterns can protect and enhance ecological goals. Where landscape architects leave off in resolving conflicting agricultural aesthetics, planning and policy can help (Lockeretz, 1997).

According to the planning literature, planners, although aware of local food systems, have had only limited involvement with components and aspects of the system (Pothukuchi, 2000). Planners have not done much to contribute to the system; in some circumstances they have actually been an obstacle to the establishment or expansion of network components (Nichol, 2003).

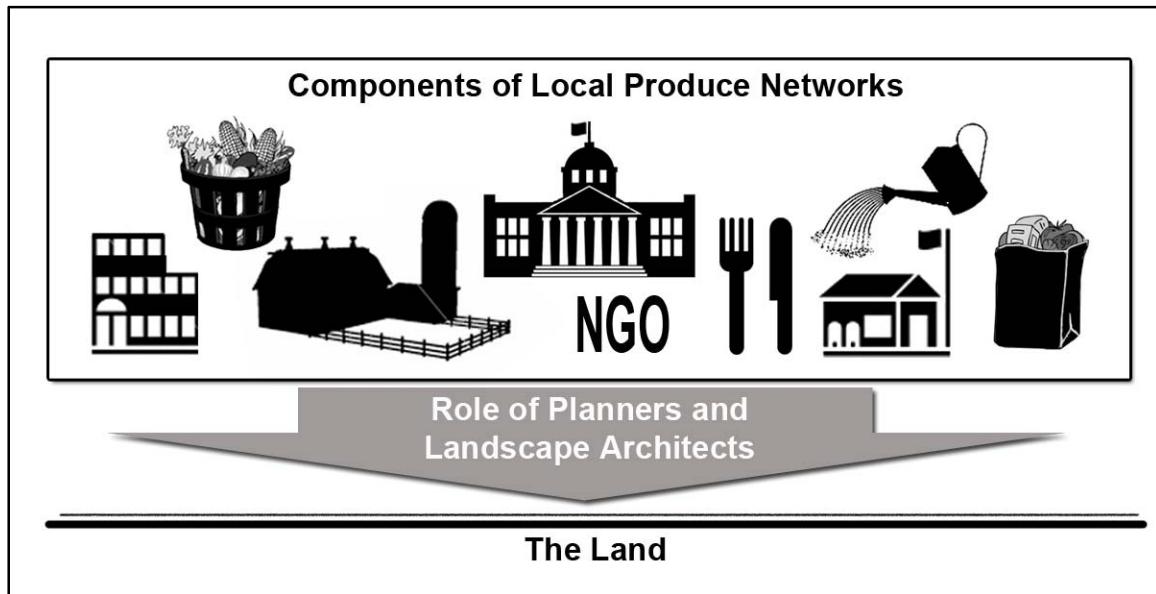
Pothukuchi and Campbell both suggest roles through which professional planners can contribute to a local food system and the means by which to do so. Pothukuchi and Campbell advocate data acquisition on the various activities related to local food systems, including “production, processing, wholesale and retail distribution, food-service, consumption, disposal, and associated regulatory activities” (Pothukuchi, p 119). From analysis of this data, connections between the local food system and other planning activities, including the impact of planning activities upon the local food network, and issues can be revealed (Pothukuchi, 2000). Revision of current land use and comprehensive plans to allow for and promote local food systems need to be implemented (Campbell, 2004; Pothukuchi, 2000). These revisions should allow for physical components, but also address food security (access) issues as well. Campbell also suggests that planners become involved in the creation of food policy councils in order to facilitate collaboration among all impacted or involved in local food networks (Campbell, 2004).

Both Campbell and Pothuckuchi suggest that there is a role for planning academia in the local food system (Campbell, 2004; Pothukuchi, 2000). Food system planning is an important component of the academic curriculum along with the commonly-occurring community development, land use, transportation or regional planning courses (Campbell, 2004). Service learning opportunities related to local food networks provide additional educational avenues for students (Campbell, 2004).

Planners and landscape architects need to participate in local food systems; the two disciplines involve skills which connect the components of local food systems to the land upon which the components reside; they are at the interface of the physical components and the land (Figure 1). Local food systems are changing and evolving (Qazi & Selfa, 2005). As more appear in communities across the United States, opportunities arise for various groups (including planners and landscape architects) to play roles (new and/or different) in the networks. There are few communities with local food networks as long-standing as Berkeley, California. Though planners and landscape architects may not have been instrumental in the development of such “older” networks, they are currently poised at the interface of the physical components of local

food systems and the land on which the system depends. Are professional planners and landscape architects actually actors in these newer local food networks? How might their roles evolve to foster the new networks?

Figure 1: Landscape Architects and Planners in a Local Food Network



CHAPTER 3

CASE STUDY SELECTION

Justification

Upstate South Carolina is a region located in the northwest corner of the state; it includes Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, Oconee, Pickens, Spartanburg, and Union Counties. In 2000, the region had a population of 1,036,053; in 2007 the population experienced an eight percent change that boasted 1,290,140 people. The region encompasses 3,620,700 acres of which approximately 650,000 (18%) are currently developed. Development pressures from rapid population growth in the area are causing conflicts at the interface of existing agricultural lands and the urban fringe (American Farmland Trust, 2002); this trend is expected to continue. Greenville and Spartanburg are the largest cities in the Upstate region (U.S. Census, 2007), but ample rivers and lakes are enticing many people to move to the traditionally less urban areas, too (Upstate Forever, 2008). It is projected that at current growth rates, by 2030, thirty percent of the land in the Upstate will be developed (Upstate Forever, 2008). The ease at which farmland converts to development and the projected rapid land use transition in the Upstate make it of particular interest in which to study a local food movement.

The Upstate of South Carolina has a strong agricultural heritage. With the invention of the cotton gin in 1793, cotton was planted in every district of South Carolina. The areas now called Anderson, Greenville, Oconee, Pickens and Spartanburg counties, were dominated by small farms; plantation agriculture did reach these areas, but not to the degree found in the lower portions of the state. Cotton continued to be a main crop through the Civil War. The ending of the Civil War altered agriculture in the region; more cotton was produced than was demanded and prices subsequently dropped. The cotton producers aggravated the problem by continuing to convert land to cotton fields. By 1930, although most growers had incorporated some responsible farming practices, overall production and revenues continued to decline because of

diminished soil fertility in areas where cotton was grown on marginal land, or where it was grown year after year without rotation. Eventually cotton was replaced by other agricultural crops, including corn, oats, and wheat and, in Cherokee County, peaches and apples. For the most part, agriculture declined in the Upstate after 1945 (Fite, 1984).

Though the study area has a history of agriculture, the promotion of local food is a relatively new concept in the Upstate. Literature does not currently exist on the condition of the local food system in the Upstate; however, the network does exist. Newspapers, television, radio, roadside signs, publications directed toward end consumers, internet social network groups, email list serves, etc. all reveal diverse actors involved in the production, promotion, provision or consumption in the local food system in the five counties of the study area.

At the state level, the SC Department of Agriculture administers the Certified South Carolina program as a cooperative effort among producers, processors, wholesalers, retailers, and the South Carolina Department of Agriculture to brand and promote South Carolina products. The goal is to enable consumers to be able to easily identify, find and buy these products. As part of this program, the S.C. Department of Agriculture issued the “Fresh on the Menu” program. This program targets restaurants as purveyors of South Carolina products (S.C. Department of Agriculture, 2008).

The SC Department of Agriculture has also established a Certified Roadside Market Program. Started in 1972, it was the first official roadside market program in the state. Roadside markets meet quality standards as do the state farmers’ markets. They also offer a supply of South Carolina farm products, although not all products found at a roadside market are required to be such. Farmers rarely personally sell their goods at these places. Often another actor will sell goods from a variety of farmers and producers (S.C. Department of Agriculture, 2008). Along with these roadside markets, there are also South Carolina Farm Bureau Farm Fresh Roadside Markets in the Upstate. At these markets locally produced fruits, vegetables, and ornamentals (including Christmas trees) are marketed directly to the consumer by farmers (S.C. Farm Bureau, 2008).

The South Carolina Department of Agriculture also supports the “Small Farms Program.” This program, the first of its kind in the United States, provides assistance to small family farmers (farms with sales less than \$250,000 annually and an average size of 110 acres) with an emphasis on dissemination of information, referrals, and counseling on issues such as: land retention, alternative land use, and community development. The focus of the Small Farms Program is to assist small farmers in understanding the challenges associated with retail marketing and in helping them to find solutions to their specific problems (S.C. Department of Agriculture, 2008). According to the 2002 Agricultural Census, 96 percent of all farms in South Carolina are small farmers (U.S. Department of Agriculture, 2008a)

Farmers’ markets are a widely publicized component of the Upstate’s local food system. The state owns and manages three regional state farmers markets in South Carolina. The Greenville State Farmers Market includes a 14,400 square foot retail sales building and a 10,000 square foot drive-through farmer-trucker shed. Both quality and variety standards exist for the products offered for sale at the Greenville State Farmers Market, growing location is not regulated. Market operations continue daily, all year long, ceasing for only Thanksgiving and Christmas Day (S.C. Department of Agriculture, 2008).

The largest cities in the Upstate (Anderson, Greenville, Spartanburg) all have at least one weekly market. There are also community-based farmers’ markets in the counties of interest to this project. These markets follow various forms – they are approved by various entities, occur on different days of the week, and are located within different proximity to each other. The various physical components of a local food movement in the Upstate are evident; the research component of this study will articulate the presence and quantity of network components and reveal the network relations that ensue.

Because of the existence of agriculture lands, the conflict concerning land conversion from agriculture to development, and the seemingly apparent local food network, the Upstate is a potentially valuable source of information on alternative agriculture networks and the roles planners and landscape architects may be playing.

Study Area Boundaries

Six of the counties in the Upstate comprise a specific partnership called the Appalachian Council of Governments (ACOG). The ACOG is a voluntary organization of the local, county and municipal governments in Anderson, Cherokee, Greenville, Oconee, Pickens and Spartanburg Counties. Created in 1965, ACOG serves the local governments in the areas of public administration, planning, information systems and technology, grants, workforce development and other social services. ACOG's services are also designed to enhance the region's economy by promoting public/private partnerships in support of economic development, economic research and analysis, and small business lending programs (Appalachian Council of Governments). Because of relationships established through the Appalachian Council of Governments, the local food system for this project will focus within this area; time and financial limitation will constrain the study to only five of the counties involved in ACOG. The case study area is delineated to include the political boundaries encompassing Anderson, Greenville, Oconee, Pickens and Spartanburg Counties.

This case study will also be limited to include only the produce sector of the local food network area in the five counties. For the purposes of this thesis, the local produce network may be referred to as the "local produce network" or the "local food network;" in this particular instance both phases refer to the same network.

The five counties, Anderson, Greenville, Oconee, Pickens and Spartanburg, comprising this study area have a local food movement, but it is a grassroots movement without a single person or organization at the helm. Without a figurehead it is not clear who is influencing, operating or facilitating the local food movement, particularly for produce. It is within this geographic area that the question, "What role have planners and landscape architects played in the development of the local produce network of five Upstate counties in South Carolina and what roles do they continue to play?" will be answered.

CHAPTER 4

METHODOLOGY

Different methods were employed in the research design of this study. Methods included historical analysis and review of current literature, ethnographic research techniques, and spatial analysis using GIS mapping and modeling techniques. In the first phase of this project, in order to understand produce production at the opposite end of the spectrum from the scale of local agriculture, investigation into the evolution of industrial agriculture was performed. From its main emergence in the 1800's to the present day, the industrial agriculture model was reviewed for specific factors that caused it to evolve into its current form; namely, the benefits of its existence and the consequences of its processes. For comparison and to trace the evolution and possible components of local food systems, histories of that movement were also investigated during a time frame similar to the industrial agriculture model. To understand the broader scope of social movements, investigation included social movement theory, the types, configurations, key processes, and participants (proponents and supporters). Investigation revealed both the social and physical components involved in local food systems, as well as the multitude of forms local food networks can assume. The research provided baseline knowledge of techniques for social and ideological change that have been employed in various circumstances and under various conditions. The literature suggests that local food systems are place-specific, being dependent on geographical, physical, economic and social aspects of a place; it does not reveal the actions and roles that professionals who affect the physical environment, such as landscape architects and planners, are actually taking in establishing or facilitating local food systems.

In January of 2009, before any data was gathered or interviews were performed, Clemson University's Institutional Review Board (IRB) approved the study because there were going to be interactions with human subjects. The IRB review deemed that the involvement of

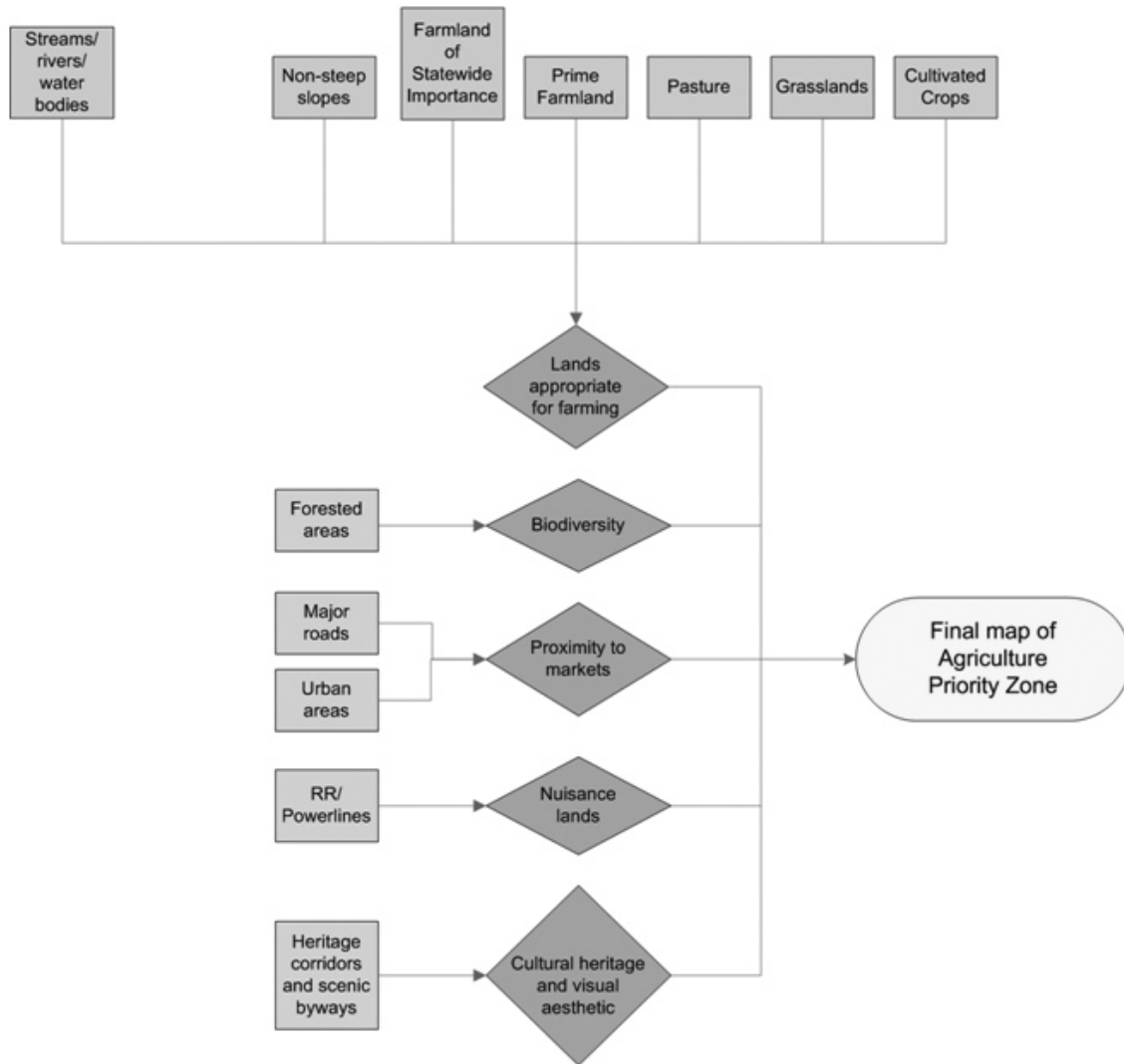
human subjects would provide neither benefits nor risks to the subjects, granting an exempt status.

Primary data was gathered using two different methods: physical and spatial observation and techniques of social research. Observing physical elements is important to create an inventory and uncover trends in land use change. Because land conversion generally moves more easily from lower to higher intensity use, observation of physical traces allows for identification of lands, corridors and regions that may be vital for local agriculture as a particular land use. Identification of these agriculture lands enables professional planners and landscape architects to make informed decisions about land use in their areas of jurisdiction. Social research is important in order to understand the relationships between the actors in the local food network and therefore, delineate and articulate the network that exists.

Spatial Analysis

Using Geospatial Model (GIS) techniques, an agriculture priority zone model for five counties in the Upstate of SC was created to identify the lands important to farming in the area. The model was based on the various characteristics found in the literature that were deemed important to farming for a local food network. Model inputs included: land productivity capabilities, accessibility to markets, adjacency and nearby land uses, natural resources (condition and proximity) and area hydrology. Farmland was prioritized for its potential contribution to the local food network according to a weighted combination of the model inputs. Because the modeling techniques are suggesting future physical forms, some assumptions for the future were required in the model. It was assumed that population growth projections in all six counties will occur at the rate suggested by the U.S. Census projections for 2030; it was also assumed that development to accommodate that growth will occur in accordance to current trends. GIS modeling process is illustrated in Figure 2.

Figure 2: Reclassification of GIS Model Variables



The agriculture priority zone model for five counties in the Upstate of South Carolina was developed with a variety of components. The first step was to determine lands that should be avoided for farming. Streams, rivers, other water bodies and wetlands as determined by the National Hydrological Dataset were classified as avoidances - they are lands to be circumvented entirely when determining the areas appropriate for farming.

The first iteration in the model combined soil, land cover and land form data. Using the extensive research provided by the NRCS as a guide, soils deemed “prime farmland” or “farm

land of statewide importance” by the US Soil Survey are included in the model as appropriate lands for farming. Lands covered by cultivated crops, hay, pasture and grasslands as indicated by the 2001 National Land Cover Database are included as opportunities for farming as well. Lands with slopes less than ten percent are also considered appropriate for farming; erosion rates on these slopes is minimal.

The modeling process applied various weights of importance to the criteria involved (Table 1). Cultivated crops (i.e., lands currently used in farming) were reclassified as a “three,” “farmland of statewide importance as a “2.” All other variables important for farming were classified as “1.” Areas that did not meet the criteria were coded as “0” or “no data.”

Table 1: Reclassification of Model Variables

Original Dataset	Variable	Reclass
NLCD	Pasture/hay	1
	Cultivated crops	3
	Grasslands	1
	All other categories	0
US Soil Survey	Prime Farmland	2
	Farmland of Statewide Importance	2
	All other categories	0
DEM	Slopes less than 10 percent	1
	Slopes greater than 10 percent	0
NHD	150' buffer on water bodies	1

The next iteration in the modeling process combined variablesthat are integral to local farming. Lands within seventy-five miles of urban areas, viewsheds along scenic corridors, lands within 500 feet of power lines and in between fifty and one hundred feet of the centerline of a rail road were identified and weighted greater than the other variables (Table 2).

Table 2: Reclassification of Model Variables

Variable	Weight
Lands less than 75 miles from urban clusters	2
Lands within 75-100 miles of urban clusters	1
Viewsheds along SC Discovery Route and Savannah River Scenic Byway	2
Stable Forest patches	1
Within 50-100' of rail line	2
Within 100-500' of rail line	1
Within 500' of power line	2

Using the ArcGIS “weighted sum” tool, the output from the first and second model were combined. Various component were weighted (Table 3) according to importance to the local food system.

Table 3: Variable Weighting

Variable	Weight
Proximity to urban clusters	3
Viewsheds along SC Discovery Route and Savannah River Scenic Byway	2
Stable Forest patches	1
Distance from rail line	1 1
Distance from power line	1
Land type	2

Network Identification

While spatial analysis provides the physical components of the local food system, it does not capture the social structure that overlays the land. An ethnographic approach was taken to gather the second set of primary data. Based on Michael Buroway’s extended case study

method, this part of the research process focused on collecting data through participant observation and interaction. Unlike conventional social science, ethnography employs a collaborative process between participant and observer. Because participant and observer share a common world, in this case the local produce supply chain, theories that each have about each other and themselves can and will be important to the success of the system (Burawoy, 1991). People were observed and engaged in interaction at a number of different venues, including local farms, farmers' markets, CSA drop-off/pick-up sites, community gardens, and local food social or educational gatherings. Emersion into the five counties' local food movement occurred in order to study people in their own time and space, to observe how people act, as well as provide insights into how people understand and experience those acts. After each event, observations and personal interactions between study author and other participants were recorded in written form. The analysis of this data occurred alongside the data gathered through formal interviews and will be explained later in the document.

Focused Interviews

Focused interviews were the core of the second technique in this research project. The interviews were designed to determine an individual's conception and definition of the local produce system (both evolution and current state), to determine the respondent's role and their importance to the existence of the network. Though subjects were gathered through a snowball interview process, after an initial potential interview list was generated using a set of criteria for physical components and organizations identified in the literature. Potential interviewees fit into one or more of the following categories:

- A farmer, growing and producing within the five county study area.
- Restaurateur with establishment within the five county study area publicizing use of local food on menu

- City or county planner or landscape architect/planning consultant acting at the direction of such a city/county planner
- Landscape architect designing venues to be used as a component of a local food system either built or in the design-concept phase
- Director of a non-profit related to nutrition, food access, local food, or health/active living
- Community garden organizer
- Farmers' market manager

The list of potential interviewees was generated using academic contacts, personal contacts and internet searches. Initial criteria generated a list of three hundred and fifty participants in the local food network. Time and financial constraints demanded paring the list to approximately ten percent. To insure all segments of the local food network were represented initial interviews were determined by both county and component type. The targeted interviews are illustrated in Table 4.

Table 4: Targeted Interviews

Counties	Planner	Market, Grocery Store or Co-op Manager	Restaurateur	NGO Director	Community Garden Organizer	Farmer	Farmer's' Market Manager
Anderson	1	1	1	1	1	1	1
Greenville	2	1	1	1	1	1	1
Oconee	1	1		1	1	2	1
Pickens	1	1		1	1	1	1
Spartanburg	1	1	1	1	1	1	1

Allocations were made by county for geographic reasons, as the larger county boundary contains municipalities; the term "county" is not used to distinguish between county and city; it is used to define a geographic subset of the study area. Because it contains the largest metropolitan area within the study boundary, Greenville County was allocated more interviews with planners than the other four counties. For similar a similar reason, interviews with restaurateurs were also allocated to counties with the largest urban areas. Oconee County is the most rural; it was allocated interviews with more farmers.

Initial interviews for each of the five counties in the study area were conducted with county or municipal planners. From these initial interviews in each county, a "snowball interview" approach was taken. In order to glean important participants in the local food network, planners were asked the question, "Who else is knowledgeable about local food in the Upstate of South Carolina; to who do I also need to speak?" With each subsequent interview the same "who else" question was asked. Reoccurring names were considered priority interviews. The last criteria that determined inclusion of the interviewee in the study was their willingness to participate.

For all interviews a conceptual guide was used to insure that certain topics, elements, patterns and relationships were covered in the focused interview process. Questions used in this guide can be found in the index.

Adjustments to the conceptual guide were made by probing interviewee for further elaboration on answers. Assumptions were made that interviewees would answer each question honestly. Field notes were taken during each interview; reflections and expansion upon the jottings that were taken during the interview as well as initial analysis were compiled after the interview, but not in the presence of the interviewee. Although the actual notes were not offered to the interviewees for review, the final research paper will be offered to all participants.

Analysis was performed on the collected data. For interview responses, data was analyzed in two ways. Individual responses were analyzed for re-occurring themes. Relations between the interviews and the larger local food networks were analyzed as well. Centrality was used to show involvement of interviews in the larger network as they themselves articulated; this

larger network included the interviewees and the response they gave reporting other important individuals in the network. Degree of centrality was used to show prestige of individual actors; link-betweenness was used to analyze the role an individual plays in connecting actors to each other. The same three methods were also used in analyzing the relations of the 350-member larger food network identified for the study area, using components revealed in the literature review.

CHAPTER 5

ANALYSIS

Data analysis reveals much about the local food network in the Anderson, Greenville, Oconee, Pickens and Spartanburg Counties of South Carolina. Done as three distinct methods of research - spatial modeling, interviews, and network actor identification - the data is combined for analysis.

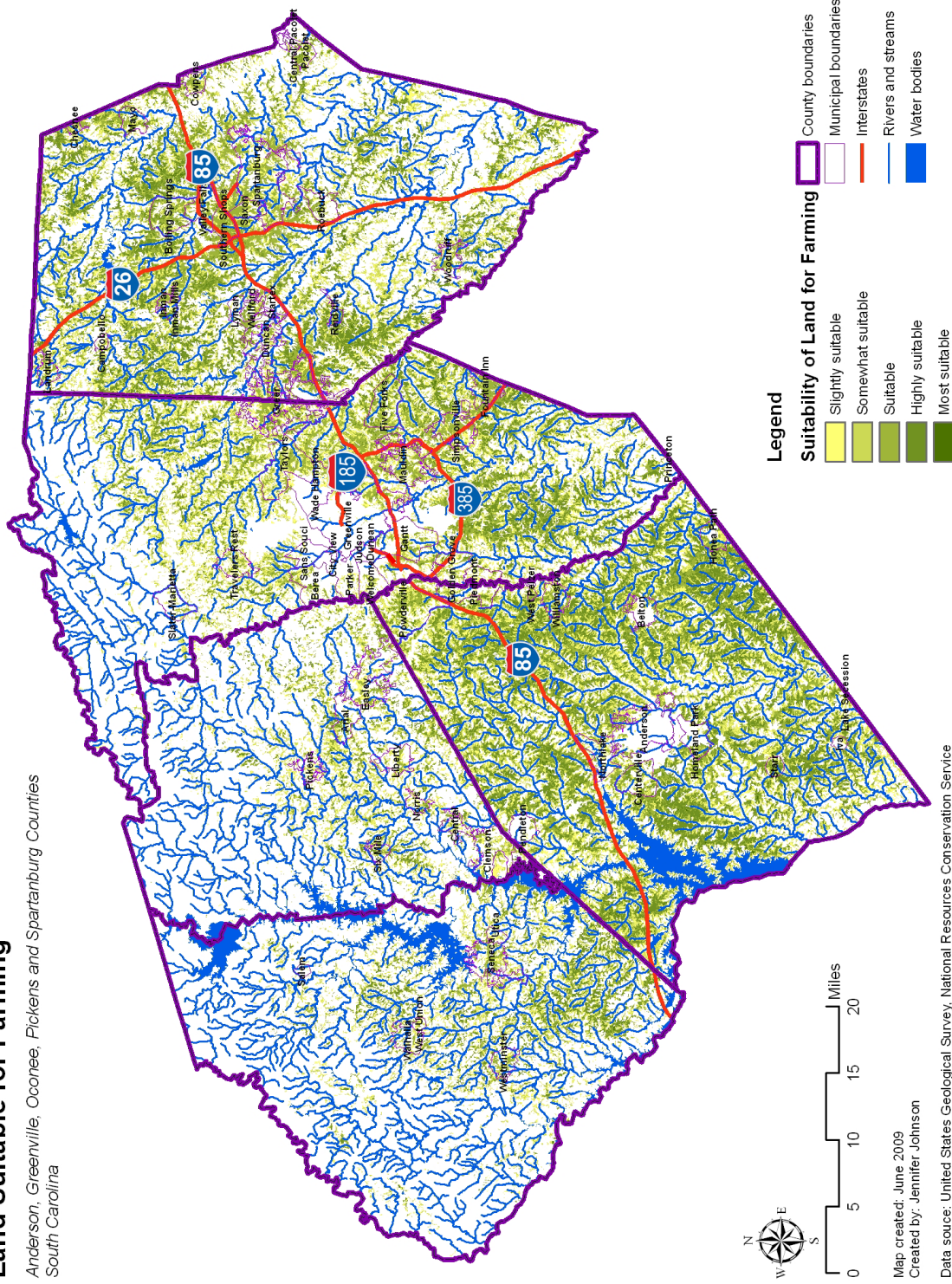
The Land

The combination of soil characteristics, slope, current land cover and proximity to water bodies indicate land appropriate for farming. Land that meets the criteria as suitable farmland is apparent all across the study area (Figure 3).

Figure 3: Lands Suitable for Farming

Land Suitable for Farming

Anderson, Greenville, Oconee, Pickens and Spartanburg Counties
South Carolina



The most appropriate lands for farming are located in Anderson and Spartanburg Counties (Table 5). Anderson County contains 259,408 acres; Spartanburg has 211,870 acres. Not including the City of Anderson, suitable farmland is spread fairly consistently across Anderson County with a particular concentration near Honea Path and to the east of the City of Anderson.

In Spartanburg County the lands suitable for farming are concentrated in the northern half of the county, north of Interstate 85. Another concentrated pocket of the most suitable farmland can be found in Spartanburg County near Reidville.

The location of the farmland in Greenville County is opposite that of Spartanburg County; the most suitable land for farming is found in the lower half of Greenville County. The northern half of Greenville County, as well as most of Oconee and Pickens Counties, does not contain much land suitable for farming. This area is known as the “foothills.” Because slope is an important characteristic of farmland and there are more frequent and steeper slopes in the northwest corridor of the study area, there is little land there suitable for farming.

Table 5: Land Suitable for Farming by County

County	County Land Mass Size (acres)	Land Appropriate for Farming (acres)	Percent of Total Land
Anderson	484,738	259,408	54%
Greenville	510,011	180,164	35%
Oconee	431,112	61,053	14%
Pickens	327,625	54,946	17%
Spartanburg	524,273	211,870	40%

The second set of criteria that was applied to lands within the study area revealed land that was suitable for this local food network, in particular (Figure 4 and Table 6). Acreages of farmland changed significantly once this second set of criteria, which included proximity to rail lines, power lines, urban clusters, stable forest patches and scenic by-ways, was applied. Proximity to stable forest patches had the most profound effect on determining whether land was ranked as having potential for contribution to the local food network.

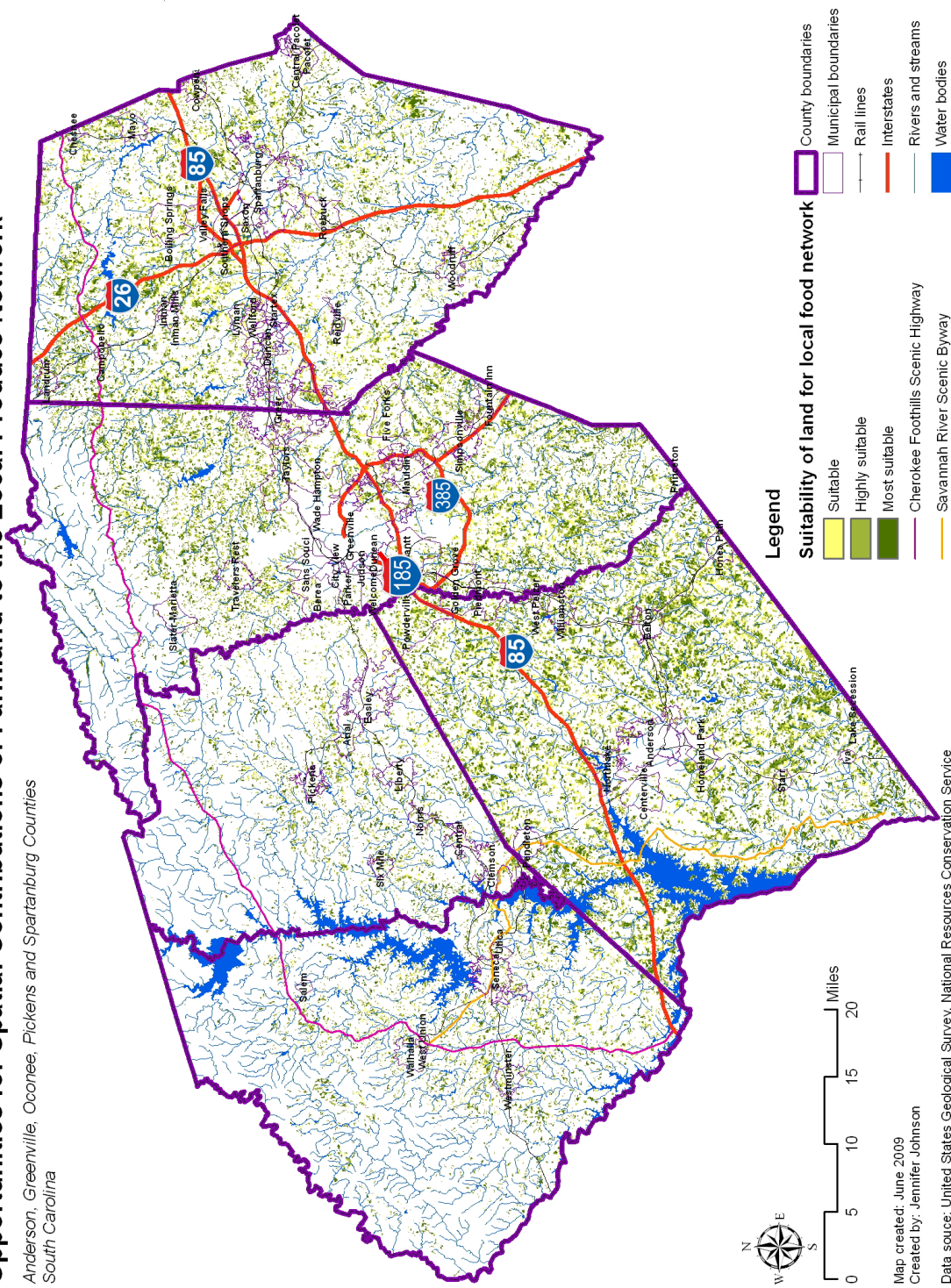
Table 6: Land for Local Farms by County

County	County Land Mass Size (acre)	Land for Local Farming (acres)	Percent of Total Land
Anderson	484,738	113,084	23%
Greenville	510,011	76,446	15%
Oconee	431,112	23,327	5%
Pickens	327,625	20,785	6%
Spartanburg	524,273	80,397	15%

Figure 4: Opportunities for Land Contributions to the Local Produce Network

Opportunities for Spatial Contributions of Farmland to the Local Produce Network

Anderson, Greenville, Oconee, Pickens and Spartanburg Counties
South Carolina



The Actors

The snowball effect used in the interview selection process guided the make-up of the interviewees. Initial contact was made with professional planners in Greenville County, these led to interviews also within Greenville County, but also with other components of the local food network. Interviews were conducted with thirty-five discrete people. During the initial interviewee selection process, two people were thought to be associated with more than one type of organization. Table 7 summarizes the completed face-to-face interviews of this research project. For the initial assumptions that attributed an individual to more than one organization, both associations are accounted for in the tally. The actual questions asked of each interviewee can be found in Appendix 1.

Table 7: Completed Interviews

Type of Organization Assumed for Initial Contact	All in Study Area	Anderson County	Greenville County	Oconee County	Pickens County	Spartanburg County	<i>Total Interviews</i>
Business	2	1					3
Co-op					1		1
Farm		1	1	1	3		6
Farmer's Markets			2			1	2
Garden		1	1		1		3
Government (Planners included in count are indicated in parenthesis)		1	5 (4)	2 (2)		1	9
Grocery			1		2		3
Educational Institution	1			1	2		4
Internet market	1						1
Non-governmental Organization	2		1				4
Restaurant			1				1

Those people that were interviewed are not the only participants in the local food network; research revealed additional players. Three hundred and thirty-four discrete organizations in fifteen categories were identified (Table 8) as being involved in the network. Farms represent the greatest percentage of the total participant types, at thirty-five percent; Spartanburg County has the most number of farms. Although a non-governmental organization (NGO) is not present for Pickens County alone, eleven cover the entire study area. With consideration of the study-area wide NGO's, all organization types are represented in Pickens County. Taking into account the internet market that serves the entire study area, all organization types are also represented in Greenville County. Anderson County is missing representation by three types of organizations; Oconee by six and Spartanburg by two.

Table 8: Actors in the Local Produce Network

Organization Type	Entire Study Area	Anderson County	Greenville County	Oconee County	Pickens County	Spartanburg County	Total by Type
Business	4	2	4		3		13
CSA		1	1		1	1	4
Co-op					1		1
Distributor		1	2		1	1	5
Farm		17	30	16	15	40	118
Farmer's Market		3	6	3	2	2	16
Garden		5	11		4	1	21
Government (including professional planners)	2	3	12	5	5	4	31
Grocery			3		1		4
Educational Institution	6	1	4		5	2	18
Internet Market	1	1		2	2		6
Market/Roadside Stand		8	11	4	9	7	39
Non-governmental (NGO)	11		14	1		2	28
On-farm market		3	2		2	6	13
Restaurants		4	13		4	1	22
Total in County	24	49	113	31	55	67	339*
*When the same organization serves more than one county, but not the entire study area, it is allocated to each. 334 discrete organizations are identified.							

Further investigation of the actors and counties reveals a few trends (Table 9).

Greenville County has the greatest percentage of all actors in the network. Although spatial analysis revealed that Anderson County has the greatest acreage of farmland appropriate for the local produce network, it is behind both Spartanburg and Greenville Counties in the quantity of farms within the county. Further investigation is needed in order to determine whether there is farmland in Anderson County that is not being used as such, or if it is in use in as a component of another agriculture (alternative or otherwise) network. Greenville County also has the greatest percentage of Oldenburg's "Third Places" (Oldenburg, 1999). This is not surprising since Greenville is also the largest municipality. What is surprising is the fact that the second greatest percentage of "third places" is in Anderson County and not Spartanburg County, which is the second largest municipality. Greenville County, in fact, has three times the percentage of "third places" as Spartanburg County.

Table 9: Components of the Local Produce Network

	Entire Study Area	Counties				
		Anderson	Greenville	Oconee	Pickens	Spartanburg
Percentage of Total Actors	7%	14%	34%	9%	16%	20%
Percentage of Farms		14%	25%	14%	13%	34%
Percentage of Potential "3rd Places"		17%	46%	8%	14%	15%
Government/Institution/ NGO Actors	25%	5%	39%	8%	13%	10%

Actors Perceptions

Definition of local food

Each interviewee was asked to define "local" in a local food network as they conceptualized it. Out of the thirty-five responses, one did not know how to define "local" and one

did not give an answer that can be transferred to a spatial quantity. Of the remaining thirty-three responses, approximate half (45%) enumerated the Upstate region as being the area delineating “local.” Other areas with multiple responses included “the Upstate and just across the Georgia border,” the area within Anderson, Cherokee, Greenville, Oconee, Pickens, Spartanburg Counties in South Carolina and Hendersonville, North Carolina, as well as “the county that you live in.” Eighty-eight percent of all respondents defined local to be at least within the Upstate region, the adjacent counties of Hendersonville, North Carolina and Rabun, Habersham, Stephens, Franklin and Hart in Georgia.

A few larger areas were indicated being “local,” as well. Two individuals responded that “local” is based on availability of the needed products; these responses do not indicate a specific area; they could be large, they could be within the study area. The state of South Carolina was the largest specific area defined as “local;” three individuals used this area as their definition. Interestingly, three of the four responses indicating the larger land areas as including the local food network were, for the most part involved in food procurement capacity; two procure foodstuffs – one for a grocery store and one for an institution; the third respondent is a wholesale food distributor.

Entrance to the network

Respondents provided a variety of reason for entering the network. Broad reasons included health, jobs, social interaction, societal trend, economics, and taste for food. Of these reasons health concerns were provided most often. Respondents cited health concerns for themselves, their family and the larger community:

- *I needed something to do in retirement. I enjoy keeping active and farming allows me to socialize when I go to the market or festivals.*
- *I have a passion for nutrition, but that has led me to have a passion for local food as well because I know it is better for all those concerned.*

- *We moved from California to South Carolina in order for my son to go to school. We could not find any good organic produce here, which the doctors said my son should eat, so we began to grow our own produce and raise our own chickens and pigs.*
- *We all take for granted that we can go to the drive-through or to the grocery store. In doing this, we are promoting a system that puts yield in competition with environmental protection. The initial intention of industrial agriculture was to feed more people as cheaply as possible. There is a cost to society for eating low quality food to cost reveals itself in healthcare costs.*

Table 10: Interviewees' Reasons for Entering Network

Personal Reasons for Entering the Network	Percentage of Total Responses
Health	13%
Employment (new or requirement of current job)	13%
Social Interaction	33%
Societal trend	0%
Economics	13%
Environment	5%
Taste (for food)	3%
Other	20%

Interviewees were also asked to report on why other people enter the local food network. These responses were split evenly between environment, health, social interactions, and food safety. Economics and taste were also mentioned but less frequently. Typical responses include:

- *I think people are scared of what is in their food. They are worried that it is going to make them sick. I also think people are concerned about the environment. They don't necessarily know what to do. They feel like growing some of their own food or buying it*

- from somebody they know might in some way if not contribute to better environmental health at least not detract from it. People have realized the advantage of being outside. They see the health benefits of it. People are scared of GMO's. People are scared of trans fats. They also do not understand food labels. They also wonder whether they can trust an organic food label anymore. Buying from a farmer might garner more trust than reading a food label.*
- *People come to the local food system for a variety of reasons, one being social. They are also scared about their food. Restaurants are coming to the market for fresh local food because they know that taste sells. Politicians and government officials come to the local food system because of economic reasons. The consumer also comes for taste.*

Table 11: Interviewees' Perceptions

Perceived Reasons for Others to Enter the Network	Percentage of Total Responses
Health	17%
Employment (new or requirement of current job)	10%
Social Interaction	23%
Societal trend	11%
Economics	9%
Environment	14%
Taste (for food)	9%
Other	17%

Although the interviewees' perception is that most people do not enter the local food network for any single reason, seventeen percent of the responses involved health as a perceived reason for others to enter the local food network, and thirty-three percent of those responses were specifically concerning food safety.

Interviewees' Roles in the Network

The roles that interviewees perceive themselves to play in the local food network of the Upstate are diverse. Five major categories of roles can be identified: planning, promotion/activism, production, procurement and education (Table 12). Interviewees were allowed to describe as many roles as they believe they actually play in the local food system. Interviewees that did illustrate the fact that the network in the Upstate is a loose one; actors have the ability to choose their own role. Out of thirty-three interviewees that indicated at least one role, there were fifty-six responses indicating self-perceived roles in the local food network, for an average of 1.7 roles per person.

Table 12: Interviewees' Perceived Roles for Themselves

Roles	Percentage of Total Responses
Planning	12%
Promotion/activism	30%
Production	23%
Procurement	19%
Education	16%

In some cases the perceived roles reflect occupation; in other cases they do not. The most frequent responses (17) were reported in the promotion/activism category; production/activism had thirteen responses and education had nine responses. Two respondents reported not having a role in the local food system. The planning category received seven responses. Interestingly, only four of the planning responses were from actual planners; the two respondents who reported not having a role in the local food movement at all are professional planners as well.

The seven planning responses represent four different aspects of a professional planner's job. One respondent is involved in the initial planning stages for an agritourism coalition

in the study area. Relations between the local food network and agro-tourism (in many of the forms it might take) could be created in the future. A landscape architect in Pickens County mentioned active participation in land use planning to delineate open space as part of a master plan. Though the land was not designated specifically for use in the local food system, it is currently being used for an organic farm, farm market and “pick-up spot” for a CSA program. A response from two different planners concerning their roles in the local food network related to public input for the comprehensive planning process. Both were involved in garnering public input concerning local agriculture; though local food was part of the discussion process, according to the interviewees, it was not important enough to the public to reach the comprehensive plan. A third planner with a role in the local food network is instrumental in the presence of a farmer’s market in a small downtown area. Though the planner claims to ensure that the market continues more by default than by choice, the planner does take an active role in providing an opportunity for the farmer and consumer to interact directly. The response from the final planner in the planning category is related to agriculture land conservation. The planner facilitated discussions among farmers exploring the option of collectively putting their rural land under an agriculture conservation easement. The planner helped bring the stakeholders together and connect them to an organization who can guide them through the conservation process if they so chose.

In the focused interviews, planners and landscape architects were also asked specifically about two possible components of their job - zoning ordinances and spatial analysis. In general the planners did not feel that zoning ordinances particularly challenged local food systems. Much of the land mass in the counties in the study area is not zoned; what is zoned is zoned for agriculture. This zoning is both good and bad. For valuable lands that have already been lost, it is unfortunate. For others, no hasty decisions have been made that might have turned out to be worse than if nothing had been done. Related to zoning, but at a different scale, some subdivision ordinances have proven to be a challenge to local food networks. Aesthetic

preferences often do not allow for produce production (vegetable gardens) in areas visible from the public domain.

All counties in the study area have Geographic Information Systems (GIS) departments. The counties have an inventory of land use and zoning by parcels. No analysis in terms of local food networks is being performed.

Missing sectors

Interview responses when asked “What sectors of the local produce movement in the study area are lacking?” were diverse. Forty-four responses were distilled into five broad categories. The categories determined by the given responses include: government involvement, education, economic factors, physical components and leadership/cooperation. The category related to physical components of the network is the one with the greatest frequency of responses. Within that category the canning and processing services are the sector seen as most lacking; this same sector is one of the three with the most responses to the question. The other two individual sectors that are tied with the greatest number of responses each garner eleven percent of the total responses. These frequent responses allude to three prominent missing sectors:

1. A lack of value-added services (e.g. canning and processing services)
2. A lack of access to markets due both to location and frequency of occurrence during the week.
3. The lack of a common, streamlined effort for locomotion of the network.

Concerning the role of government (both politicians and government employees) in the local produce network in the study area, there are two divergent schools of thought. Some respondents felt that the government needs to be more involved in the local food network, others see government involvement as a detriment to the system. One respondent who is both an agriculture consultant and farmer articulated that farmers tend to be independent and wary of

governmental action. Another respondent mentioned that government action, using the GAP (Good Agricultural Practices) safety program as an example, specifically works to suppress the local food system by making it financially infeasible for the small farm to make a living. GAP, currently a volunteer program, attempts to resolve food safety issues for farming in general. Farmers interviewed through this research tend to suggest that small farmers themselves are good food safety measures - a small farmer is eating the same food he sells to his customers. Public confidence in the safety of a small farmer's product is gained through repetitive personal interactions between farmer and consumer.

The Local Produce Network

The Network as Defined by Interviewees

Relations between actors are the important part of a network structure. Two data sets were created; one of the relationships between organizations within the study area and one from interviewee's individual responses asking which other individuals were important to the local produce network.

Similar to the 1973 Laumann and Pappis study of community leaders (Wasserman & Faust, 1994) local food actors were asked to define the boundary of individuals (as opposed to organizations) through the identification of "elite" individuals in the network (Wasserman & Faust, 1994). The data set that was created from these responses is a one-mode data set of unilateral direction. Seventy-nine people were identified by the interviewees.

Application of degree centrality reveals three distinct levels of prominence (Figure 5). There are two actors that share the highest prominence; three more are closely related in terms of visibility in the network. The roles in the local food network of the two most prominent actors include a non-governmental organization and an institution; the other three most prominent actors represent a business, non-governmental organization and farm. These are the most visible actors in the network.

The diagram illustrates a network of actors. The outermost grey ring is labeled "All other actors in interviewee-defined network". The middle white ring contains various icons representing different types of actors: a factory, a government building, a multi-story building, a factory with a flag, a government building, a multi-story building, a factory, a government building, and a multi-story building. The innermost white circle contains the text "NGO" and an icon of a house with a flag.

Identification of the “elite” individuals in the local produce network as defined by the interviewees reveals that fifteen actors of the seventy nine (nineteen percent) in the network share the same level of prestige. This group includes two with roles associated with business, three farmers, three in governmental roles, two related to institutions, two with roles in non-governmental organizations, and one each with a role with a garden, grocery and restaurant. The two most prominent actors appear in the group exhibiting the most prestige; of the eighteen most

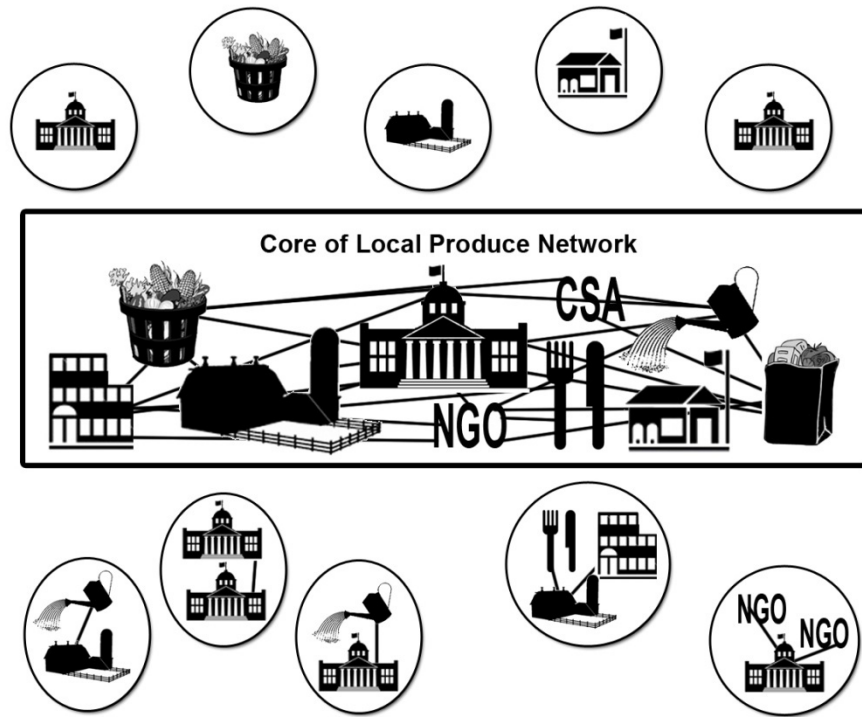
prominent actors, only twelve are in the group with the most prestige. No planners appeared in either the group displaying the most prominence.

Actors displaying prominence and not prestige reveal that the actors have more relations that are connecting them to others in the network together than there are links coming to them. Participants are acting in the network more than they are being the recipient of actions.

“Link betweenness” measurement revealed that there are a variety of ways actors lie on paths between others in the network. Fifteen actors mediate relations more than the rest of the actors in the network Figure 6 illustrates the varying strength of actors’ ability to influence other actors. The fourteen actors with the greatest betweenness centrality include: one garden manager, two with roles in institutions, two farmers, three with governmental roles, two with non-governmental roles, two in business, an actor involved with grocery food stuff procurement, and a restaurant chef. Again, planners and landscape architects are not represented in the group most connecting others in the network.

Interestingly, link betweenness analysis reveals a concentrated group of actors, plus a group of five actors, four dyads, two triads and five individual without connections to the core of the network. Of these five individuals, two were determined as part of the initial interviewee selection process, not as part of the snowball process; one being a professional planner. Planners appear in the dyad and triad relations. This means that the people who planners suggested as a part of the local food network are not seen in the same light by others in the network.

Figure 6: Local Produce Network



The Network of Organizations

As with the relations among individuals, the relations between organizations were also analyzed using measures of centrality. Application of degree centrality reveals six distinct levels of prominence (Figure 7). There are nineteen actors that share the highest prominence; forty-two in the second tier sixty-eight in the third, one hundred and forty-eight in the fourth and fifty-eight in the last. The organizations with the most prominence in the local food network study area include two farmer's markets, five non-governmental organization, four institutions, two forms of government, two farm markets, three farms and a CSA program. Prominence in the local food network is not dependant on organization component, but it does seem to be related to county. Clemson University plays a role in local food through the various components of the Sustainable Agriculture Program; the program seems to have gained prominence in the network. Anderson County has a Farm-to-School program that involves government, the school district and farmers.

This coordinated effort and the connections created there-in contribute to Anderson County's prominence in the network.

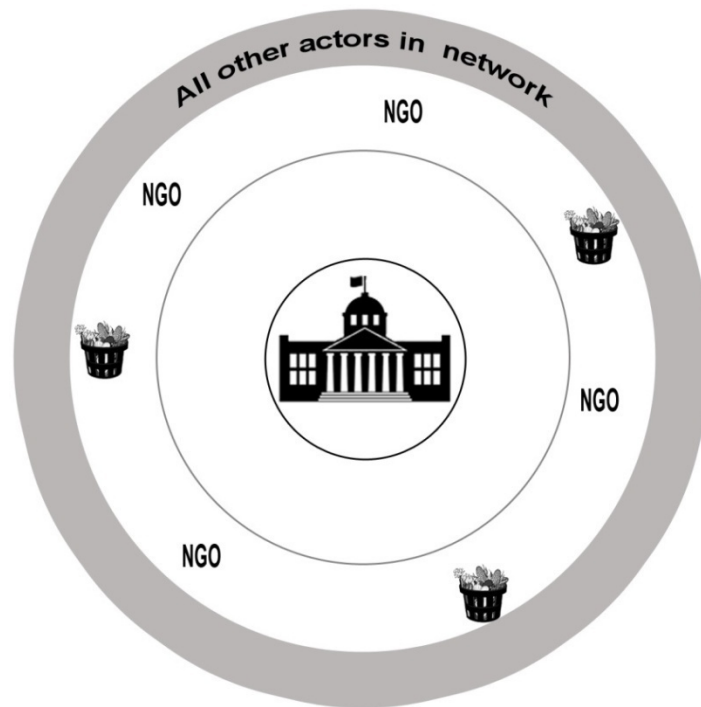
Figure 7: Prominence of Organizations in Local Produce Network



When using centrality to look at prestige, one organization, the SC Department of Agriculture is revealed as the most prestigious (Figure 8). In terms of levels of prestige, all the other actors are grouped near the far end of the scale. Only seven (two percent) are slightly more prestigious than the remaining three hundred and twenty-six. The seven organizations in between the prestigious one and all those that are not prestigious, can be divided into the following categories: farmer's markets, non-governmental organizations, and internet markets. Carolina Farm Stewardship, Appalachian Sustainable Agriculture Program, Greenville Organic Food Organization, and Upstate Locavores are the NGO representatives. Greenville's Carolina First Saturday market and the Hub City Farmer's Market are in the farmer's market category; Upstate Locally Grown is the internet market. Both the Hub City Farmer's Market and the

Carolina First Market are open consistently (both during the growing season and from year to year); these markets in the largest cities in the study area.

Figure 8: Prestige among Organizations in Local Produce Network



Link betweenness analysis reveals a form similar to the patterns for the interviewee-defined network (Figure 6). A central concentrated group of actors is intricately linked. Organizations are on the fringe as well. Fifty-seven organizations do not have linkages into the network. There are also four dyads and three triads that, though there are relations present between the actors, there are no relationship with the greater network.

CHAPTER 6

FINDINGS AND CONCLUSIONS

Four specific, inter-related findings have emerged from the physical and spatial observation and techniques of social research employed in research into the local food movement in Anderson, Greenville, Oconee, Pickens and Spartanburg counties in the Upstate of South Carolina. Included in these findings are:

1. A local food movement can evolve without a figurehead at its helm.
2. This research study provides solid evidence that planners and landscape architects are not currently playing a role in the local food movement in five counties in the Upstate of South Carolina.
3. This research provides viable ways for planners and landscape architects to participate in local food movement in five counties of the Upstate of South Carolina. These roles that landscape architects and planners can play in the local food movement within this study area have the potential to be transferred to other local food movements.
4. This research identified and articulated information about the Upstate Local food movement that will facilitate the roles that planners and landscape architects can play within the movement.

Information to be Utilized by Planners and Landscape Architects

Literature provided evidence that defining the boundaries of a local food network is difficult. Other than the opinions provided by food procurers at the institutional scale and the distributors that supply them, the definition of local food as articulated by the actors in the local produce network of this research project is consistent. The boundaries do extend beyond the

political boundaries of the study area to include the entire Upstate region. “The Upstate” is the collective identity for the geographic region; it would follow that the local food identity for this area would adhere to those boundaries as well. Planners and landscape architects can capitalize on the existing collective identity in order to help citizens and clients understand “local.”

People enter the local food network for a variety of reasons – from health concerns to economic reasons to societal trends. Once people are in the network, they are free to take on different roles. The network is heterogeneous, with accommodations for many preferences and skills. With the diverse roles present in the network, there, however, is a perception that a cohesive vision and direction for the network is lacking. This lack of direction is not a short-coming in the network structure itself. To this point, no single organization or person has taken the position of propelling the movement forward. Since the local food movement is already in existence, and entrance to the network is still possible, there are opportunities for leadership to assert itself and take the movement into the future.

The South Carolina Department of Agriculture has a visible role in the local produce network in the Upstate of South Carolina, but it is not necessarily providing direction for the movement. The department is currently the most prestigious network actor; more actors are related to the S.C. Department of Agriculture than any other single actor in the network. The department’s prestige is a result of its marketing and branding programs for the local food network, including “Certified SC Grown” products and roadside stands programs, as well as the “Fresh on the Menu” program. These marketing programs are connecting farmers, markets and restaurants throughout the network. However, in the local produce network in this study there is a disconnect among actors concerning the role of government in the network. This disconnect occurs between the farmers, in particular, and other participants in the local food system. Farmers feel that government intervention is not necessary; other participants feel that the government needs to take a regulatory role. Groups from both schools of thought need to be engaged in discussion together. Farmers comprise the largest single component of the local food network so their voice in guiding the direction of the network needs to be heard. Campbell

suggests that planners should take a leading role in the creation of food policy councils to guide local food systems (Campbell, 2004). In the Upstate of South Carolina, considering the skepticism of farmers about the role of government and the large number of farmers participating in the local produce network, the determination of the role of government needs to come from within the movement itself.

Roles for Planners and Landscape Architects

There are opportunities at all stages of planning and at a variety of scales for both the landscape architecture and planning professions to participate in local food networks, particularly in the Upstate. In planning for the future, both in terms of garnering public input or masterplanning, landscape architects and planners in the study area have taken juvenile roles, upon which there is opportunity for expansion.

Planning activities within the study area of this research project have not been detrimental to the local food movement thus far, but they have not promoted it either. Much of the study area, especially the non-urbanized areas are unzoned. Those that are zoned are largely zoned for agriculture. Although the counties in the study area have geographical information system (GIS) technologies and land inventory capabilities, no professional analysis has been performed on lands specifically important to the local produce network. Planners and landscape architects need to first understand the land characteristics upon which the movement depends.

Planners and landscape architects also need to understand the components of the local produce network other than the land. Planners and landscape architects are neither seen by others in the local produce network as prominent actors, nor are they actively taking leadership roles in the network. The people that planners and landscape architects often identified as important actors in the network are not seen as such by the core group in the local produce network. Planners and landscape architects must educate themselves about the people involved in the local produce network and understand the relations among them

The land is the foundation for any local food network; the relations between people make the network possible. The nexus between the land and the components of the network are the planners and landscape architects. This research provides evidence of the absence of planners and landscape architects in a grassroots local food movement and examines the visibility of other potential roles proffered in the literature. Planners and landscape architects should:

- Inventory the components of a local food system
- Analyze the connections between planning and design activities and the particular local food system in their jurisdiction
- Create an agricultural aesthetic that provides beauty for the observer, as well as ecosystem health and functionality of the land for agriculture.
- Revise current land use plans landscape patterns that do not contribute to a local food system
- Facilitate discussions among stakeholders
- Educate the public and affect their perception of an agricultural aesthetic and environmental health

The roles planners and landscape architects should play are important to a local food movement. Planners and landscape architects are the interface between the components (inanimate objects, places and individuals) of a local food system and the land upon which the components reside.

Contributions

This project contributes to the literature by articulating the structure of a social movement, this one focused on a local produce system, without the presence of a single, notable personality; it contributes to the professional fields of landscape architecture and planning by revealing the roles and actions each can take to foster a viable local produce network within the five counties in

the study area; it also provides an analysis of the social network inherent in the local movement. Analysis of the network revealed through this study will be useful to network participants as they strive to determine how to best capitalize upon the strengths and the unique opportunities within the Upstate region (including physical and geographical forms and social institutions) and plan for the future of their movement.

Limitations of the Study and Recommendations for Future Research

This project offers as many possibilities for further research as questions that it answers. This project only considered the local produce network; it did not consider meat (cow, poultry, goat, sheep), dairy (goat, sheep, cow) or egg production for Anderson, Cherokee, Greenville, Oconee, Pickens and Spartanburg counties. With time and financial constraints, this project was limited to five of the ten counties in the Upstate of South Carolina and to thirty-five interviewees; opportunities exist to compare and contrast the counties of this study to the other half of the Upstate counties, as well as all ten to other parts of the state or nation. The thirty-five interviewees constituted a small portion of participants in the local produce movement. Because participants seemed receptive to being interviewed, future research could capture the inputs of the many other participants in the network. This study also provides a “snapshot” in time; future studies could look at the movement along an extended timeline. Other interesting avenues of future research include looking at the economics of the local food movement to quantify and define an economically viable and successful local food movement that include food justice and food security.

APPENDICES

Appendix 1: Interview Questions

The Evolution of the Local Food Movement in Five Counties of the Upstate of South Carolina INTERVIEW QUESTIONS

Local Food Systems in General

1. When did you begin working in your field? Were you aware of a local food system at that time? What was the status of the local food system at that time?
2. In your opinion, what constitutes "local?" Size of farm? Distance between market and consumer?

Current Local Produce Network

3. What has been your role in helping to plan for a local food system and what have you done specifically to support this effort? Why did you become involved? What have you been asked to, but not able to do? (Have you facilitated discussions about local food? Brought together stakeholders in the local food system? Aided the concerned public/citizen activist groups in accessing policy makers specifically about local food issues?)
4. Who are the major participants in the current local food system? When did they appear "on the scene?"
5. What aspects/components have been successful or well received? What defines success? What makes them successful? When did the successes occur?
6. What, if any, sectors, components or aspects of a local food network are lacking? Is current supply of locally grown produce greater than current demand?
7. What has brought participants (both producers and consumers) into the local food system?
8. What kind of infrastructure or support is available to new participants entering the system? Is it adequate? When was this infrastructure or support put in place? What is still needed?
9. What relationships are essential to the success of the local food system? What relationships are essential to you in particular?
10. How would you characterize the public's perception of the local food system in this area? How has consumer perception of local food changed? What still needs to happen? What does the end consumer seem to desire?

For Planners

11. How do you feel planning policy has contributed to the success of the local food system here? What ordinances/initiatives/design features are currently in place to promote local food?
12. What ordinances/initiatives/design features currently in place challenge the existence of a local food?
13. Do local food venues (farms, markets, co-ops, community gardens, etc) present any particular land use issues? If so, how have they been resolved?
14. Has spatial analysis been employed in terms of the physical relationship of the various aspects of the local food network? (i.e., proximity to dense populations, transportation routes, food distribution centers or underserved areas)? What specific decisions have been a result of this analysis?

Looking toward the future

15. Are the city's/county's/your future plans regarding local food any different than current?
16. Does the local food system have what it needs to meet future demands? What obstacles remain for local food in your area and how might future plans and policies address those obstacles?

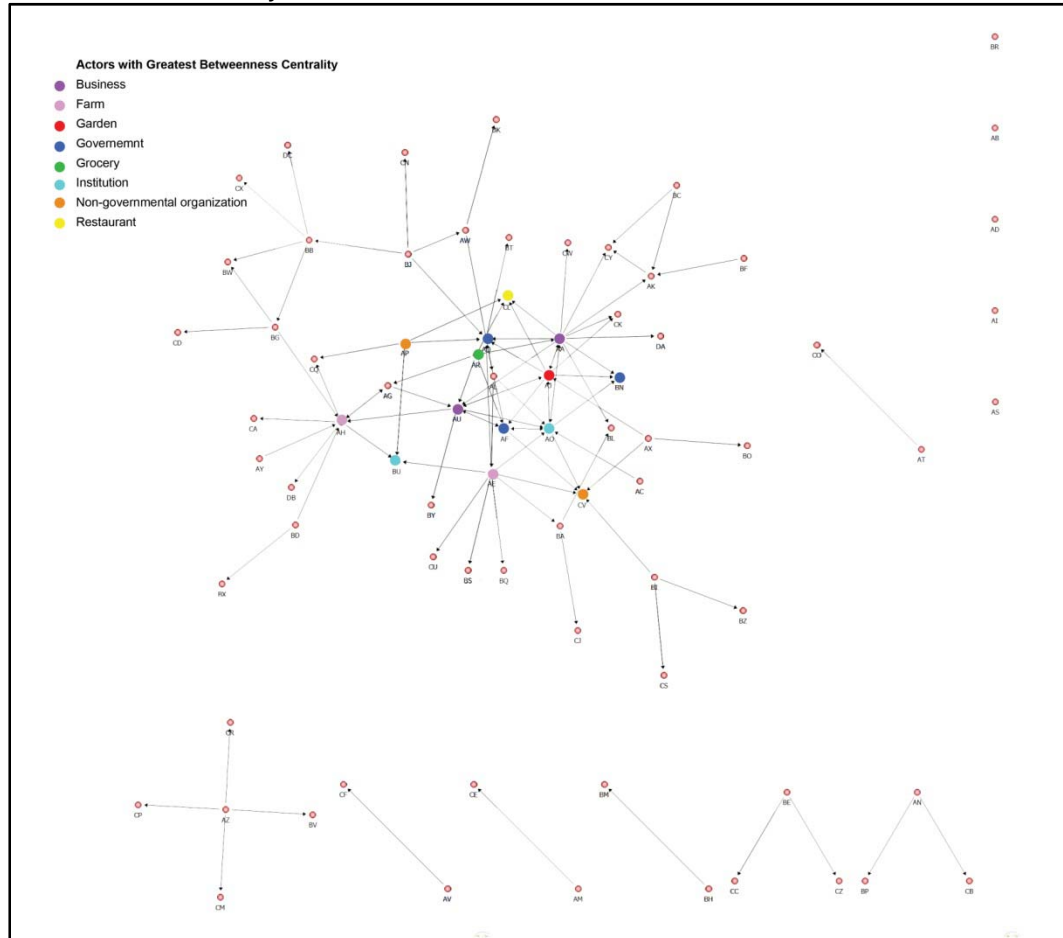
One last question

17. Do you know of anyone else to whom I need to speak?

Appendix 2: Prominence and Prestige of Actors in Interviewee-defined Network

Component Association of Actor in Network Defined by Interviewees	Actors Appearing in Top two tiers of Prominence in Network	Actors Displaying Top Tier of Prestige in Network	Actors Displaying Prestige, but Not Prominence in the Network	Actors Displaying Prominence, but not the Top Two Tiers of Prestige
Business	3	2		2
CSA				
Co-op				
Distributor				
Farm	2	3	1	1
Farmer's Market				
Garden	1	1		
Government	3	3		1
Grocery		1	1	
Institution	4	2		1
Internet Market				
Market/Roadside Stand				
Non-governmental (NGO)	4	2	1	1
On-farm market				
Restaurants	1	1		
Totals	18	15	3	6

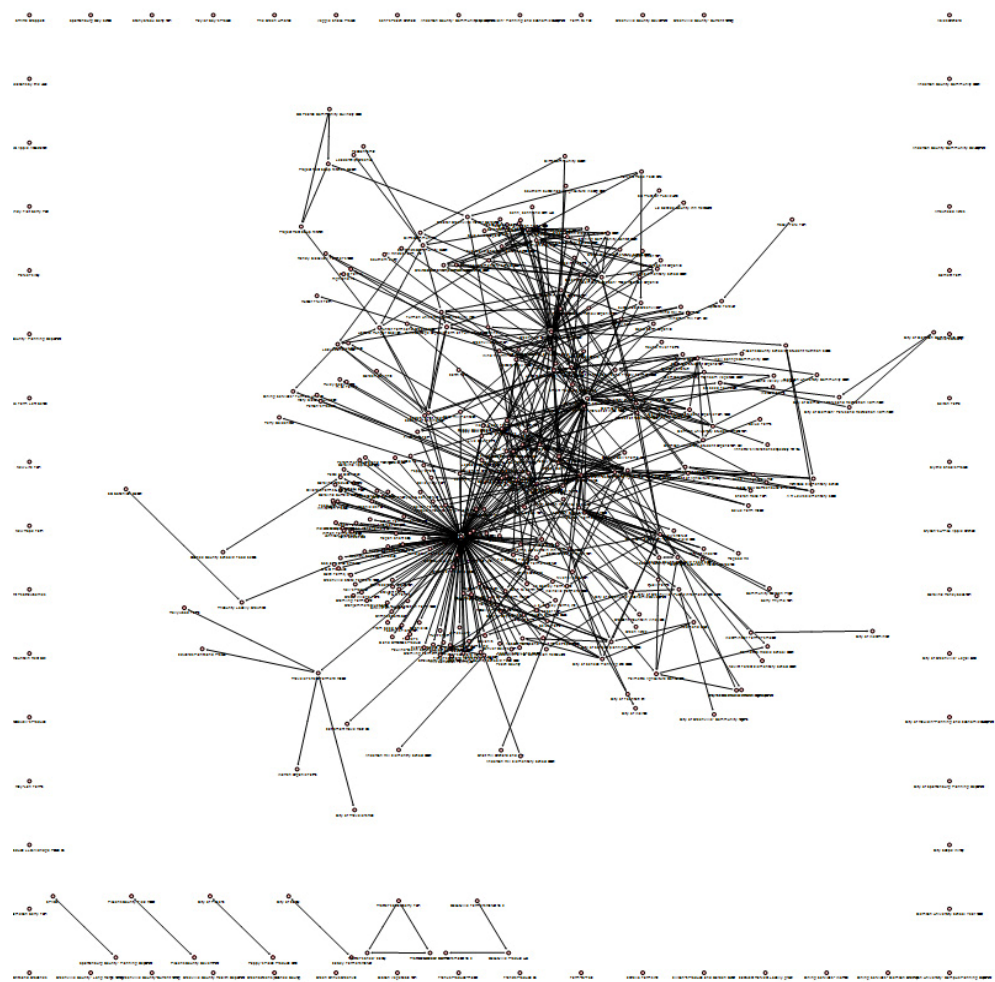
Appendix 3: Betweenness Centrality



Appendix 4: Prominence of Organizations

Organization Type	Entire Study Area	Anderson County	Greenville County	Oconee County	Pickens County	Spartanburg County
Business						
CSA					1	
Co-op						
Distributor						
Farm		1			2	
Farmer's Market		1			2	
Farm Market		1				
Garden					1	
Government		1				
Grocery						
Institution	4	1				
Internet Market						
Market/Roadside Stand						
Non-governmental (NGO)	4					
On-farm market						
Restaurants						
Totals	8	5	0	0	6	0

Appendix 5: Betweenness of Organizations



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